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FOR HEALTH & ENVIRONMENT

RESULTS OF THE 1985 RADIOLOGICAL SURVEY AT FORT DIX BOMARC SITE NJ

EDWARD F. MAHER, MAJOR, USAF, BSC

JUNE 1986

Annual Report

USAF Occupational and Environmental Health Laboratory
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This report documents the results of radiological surveys and environmental surveys and environmental sampling conducted during the annual Radiological Survey at the 1960 BOMARC accident site, Fort Dix, NJ. The surveys were performed by personnel from the Radiation Sciences Division, USAFOEHL, during 15-21 September 1985. The report concludes that the plutonium contamination appears to be still fixed under the reinforced concrete apron in front of the missile shelter. Little or no vertical movement of the plutonium has occurred in the soil since the accident. Significant plutonium contamination was not found outside the BOMARC site boundary. None of the off-site sampling locations exceeded the USEPA's proposed limits for transuranics in the uncontrolled environment.

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

I. INTRODUCTION

A. During 15-21 September 1985, personnel from the Radiation Services Division of the USAF Occupational and Environmental Health Laboratory (USAFOEHL/RZ) conducted the annual radiological survey of the Fort Dix BOMARC Site, New Jersey. Periodic environmental monitoring on and around the BOMARC site has been ongoing since 1975 as part of the Air Force's program to maintain the deactivated site and to monitor the residual plutonium left as a result of the BOMARC missile fire in 1960.

B. The periodic environmental monitoring plan for this installation was implemented in 1975 at the direction of the USAF Surgeon General (re: HQ USAF/SGPP Ltr, 12 Jun 73) under the operations plan entitled "WATCH-DOG PLUTO". Since then, radiological site surveys have been completed in 1976, 1978, 1979, 1981, 1982, 1983, 1984, and 1985. This report contains the results of the 1985 site survey, observations, sample analyses, interpretations, and recommendations for future surveillance.

II. BACKGROUND

A. On 7 June 1960, an explosion and fire erupted in BOMARC missile launch shelter No. 204 of the now-deactivated 46th Air Defense Missile Squadron (ADMS), located on the Fort Dix Military Reservation, New Jersey. The missile and its nuclear warhead were consumed in the intense fire. As part of the firefighting activities, copious amounts of water were used to control the fire and to prevent it from spreading to any of the other 84 missile shelters in the complex. As a result, a yet unknown portion of the warhead's fissile material (plutonium) was flushed from inside the shelter and either contaminated the soil and asphalt in front of shelter 204, or was washed down the asphalt ramp into a drainage ditch (re: Figure 1). The precise amount of plutonium contained in the missile warhead remains classified to this day and will not be mentioned in this report.

B. The drainage ditch runs southerly from shelter 204, paralleling the site boundary fence for several hundred feet before entering an underground culvert, and crossing underneath County Highway 539. From this point the culvert opens into a sandy ditch that eventually flattens into a heavily wooded area across the highway. A third, but unlikely, possibility for the fate of the fissile material is that a portion of it might have been carried aloft in the fire and dispersed downwind (SSW) of the BOMARC site. The rationale that this possibility is unlikely will be discussed in Section IV.E of this report.

C. About one year after the accident, four inches of reinforced concrete were poured over the asphalt apron in front of missile shelter 204 in an effort to "fix" the plutonium contamination under a protective overburden. In addition to this, two inches of asphalt were placed along the bottom of the drainage ditch located inside the site boundary fence. Early radiological surveys in 1970-1973, conducted by USAFOEHL's predecessor, the USAF Radiological Health Laboratory (USAFRHL), have shown most of the plutonium is under the concrete pad in front of the shelter or in the uncovered grassy areas adjacent to launch shelters 201-208. These areas have been the sites of highest contamination (10.0-120 $\mu Ci/m^2$). Vertical Pu-239 profiles in the soil near bordering edges of the concrete, conducted in 1973, indicated that the plutonium contamination was contained within the top 6-8 inches of soil (1). In addition to the above areas, lesser amounts are detectable along the entire length of the drainage ditch inside the boundary fence (< 0.5 $\mu Ci/m^2$).

D. Off-site, in uncontrolled locations on both sides of highway 539, most of the contamination has been well below the U.S. Environmental Protection Agency's (USEPA) proposed "screening level" for limiting the public's exposure to transuranics of 0.2 microcuries per square meter (0.2 $\mu Ci/m^2$) (2). At the few off-site locations that have in the past been found to exceed the proposed "screening level", there has not emerged an apparent trend of either decreasing or increasing plutonium soil contamination. A 10-year summary of the Pu-239 levels measured on and off the BOMARC site and trend analysis, as well as an interpretation of the results have been recently published in USAFOEHL Report 85-151RZ121JRD (3).

E. Although soil sampling and instrument surveys at the BOMARC site have been extensive over the past ten years, ground or surface water monitoring for plutonium has been minimal. Renewed concerns for the site by New Jersey State officials have recently elevated the issues of plutonium contamination of local hydrogeological units. A second State concern had to do with the downwind airborne dispersion of plutonium from the site during the 1960 incident, and the residual contamination currently present in these downwind areas. In response, the USAF Surgeon General tasked USAFOEHL to expand its monitoring efforts on and off the site to: (1) determine the impact of the plutonium contamination on local groundwater supplies and on the major hydrogeological formations in the region; and (2) make preliminary predictions of the expected airborne Pu-239 concentrations and ground contamination levels downwind at the time of the incident.

F. Both of these State concerns have been responded to through preliminary assessments conducted by USAFOEHL for HQ MAC/SGPB during October and November 1985 (4,5). The results of these groundwater measurements and air dispersion modeling are repeated in this report. In addition, the 1985 survey incorporated 15 new sampling locations as far away as 10 miles downwind from the accident site. Most of these new sample sites were located inside and about the artillery impact areas of the Fort Dix Reservation and along Routes 70 and 539.

III. SURVEY METHODS AND PROCEDURES:

A. **Instrumental Monitoring:** The entire BOMARC site and areas immediate to the site boundary were extensively surveyed using FIDLER (field instrumentation for the detection of low energy radiation) instrumentation. (The FIDLER, consisting of a scintillation probe (5 in diameter x 1/8 in thick NaI[TL]) in combination with an Eberline Instrument Corporation (model PRM-5) survey meter, was used to record the external radiation count rate at the grid locations shown in Figures 1 and 2.) The gross count rate data were collected at high voltage settings (windows) optimized for 17, 60, and 90 keV photons.

The former two energies represent x-ray energies from Am-241, which is a signature for the presence of plutonium. The latter energy represents a broad-average energy for natural background radiation. The gross count rate data were corrected for background radiation and various calibration factors, and then converted to plutonium areal density expressed as microcuries per square meter of soil ($\mu Ci/m^2$).

B. **Soil Samples:** Representative soil samples were collected from on-site and off-site areas shown on Figures 3, 4 and 7, respectively. The samples were collected by taking eight core samples (3" diameter by 8" deep) in a four point "cross" pattern at a distance of 15 and 30 feet from the center of each sampling site. A single site collection resulted in approximately 6 Kg of soil. Upon arrival at the Laboratory, each soil sample was dryed, blended, and homogenized prior to being processed for counting. All soil samples were first analyzed for gamma-emitting radionuclides using high-resolution (GeLi) gamma spectroscopy. The counting configuration consisted of a homogeneous sample sealed in an aluminum can (8 cm diameter x 3 cm deep) centered inside a 600 mℓ Martinelli Beaker. Secondly, approximately 10 grams of each soil sample were radiochemically processed for plutonium isotopes and analyzed by high-resolution alpha spectrometry. The radiochemical procedures called for the dissolution of the 10 grams with a series of strong acids (nitric, hydrofluoric, and hydrochloric), extraction of the plutonium using a resin column, and electroplating the residual on a stainless steel planchet (6). Transfer efficiencies for the method were determined to be better than 40% using a radioisotopic tracer of plutonium-242. New Jersey Department of Environmental Protection (NJDEP) employees duplicated about 10% of all soil samples. Split samples were sent to NJDEP upon completion of the soil blending at USAFOEHL.

C. **Water Samples:** The 1985 annual survey included water analysis for plutonium concentrations in numerous on- and off-site locations. This included well water samples from nearby private residences and several Government-owned wells on the site or on adjacent installations (re: Figure 8). All these sample results were reported in an earlier USAFOEHL letter to HQ MAC/SGPB, dated 31 Oct 85 (4). An additional 11 water samples were collected from off-site locations shown in Figure 7. These samples comprised a representative survey of surface and well waters that were downwind from the BOMARC complex during the missile fire. Water samples were collected in 1-gallon collapsible plastic containers and stored without preservation until analyzed. Gross alpha concentrations were measured by evaporating a 200 mℓ volume of acidified water on a 2-inch stainless steel planchet and counting the residue in a windowless gas-flow proportional counter. Plutonium concentration was determined by coprecipitation with alkaline earth phosphates in a one liter sample. Plutonium was extracted using an ion exchange resin column, electrodeposited onto a 10 mm stainless steel planchet and counted using an alpha particle spectrometer (7,8). The minimum detectable activity for Pu-239 was generally less than 0.01 picocuries per liter.

D. **Vertical Pu-239 Profiles in Soil:** Four soil sampling sites were selected to study Pu-239 concentrations as a function of soil depth. These samplings were useful in determining the vertical profile of plutonium in the soil as an indicator of the extent of the downward migration of plutonium compounds. Vertical distributions were measured at one-inch depth intervals from the surface down to one foot. One additional sample was collected at a depth of two feet. The four locations chosen for vertical distribution measurements included site numbers 107, 107A, and K0671 (re: Figure 4), and a final sample from a site of high contamination adjacent to the burned-out missile shelter 204. The latter is referred to as the "bunker" site. The samples were collected by digging a rectangular trench approximately 4 feet long by 2 feet wide down to a depth just beyond two feet. Vertical samples were taken from the walls of the trench using a 4" wide by 1" high rectangular coring shovel. Approximately 1 kg of soil was collected at each level. Great care was taken during the sampling to preclude contaminating lower levels with soil from above. These soil samples were processed and analyzed in the same manner as described above for the other soil samples.

E. **Air Dispersion Modeling:** Preliminary estimates of the downwind dispersion of plutonium that might have occurred during the accident were conducted in November 1985 and reported to HQ MAC/SGPB in a letter dated 22 Nov 85 (5). The approach taken was to use a relatively simple Gaussian dispersion model (9) with the available meteorological data at the time of the accident, assuming worst case conditions, to predict the plume touchdown points downwind. The assumptions and data used in the modeling effort were: the local winds were from the NNE at 3-8 knots (1.2-3.1 m/s); and the plume release height was between 50 and 400 feet (15-122 m). The dispersion modeling was conducted using the "A" and "C" Pasquill atmospheric stability classifications, which are typical of late afternoon conditions. Class "A" represents extremely unstable conditions (high vertical mixing) and the "worst case" conditions, whereas class "C" typifies slightly unstable atmospheric conditions (low vertical mixing). The modeling did not attempt to estimate downwind air concentrations since this would have required a suitable source term for the plutonium release, which still remains classified for national security reasons.

IV. RESULTS AND OBSERVATIONS

A. FIDLER Survey

1. The FIDLER survey measurements for plutonium areal density ($\mu Ci/m^2$) across the BOMARC site are given in Table 1. The grid measurement identifiers, i.e., column letter and row number for a particular measurement site refer to either Figure 1 or 2. Figure 2 denotes the locations of the intensified grid measurements conducted over the reinforced concrete slab and inside the highly contaminated area surrounded by the concertina wire. (Gross FIDLER counts [uncorrected] are given in Appendix B.) The results in Table 1 give either the estimated Pu-239 aerial density along with the coefficient of variation for the estimate (%), or the minimum detectable areal density (MDAD). The latter is presented when the levels were low and statistically unreliable. The proper interpretation of the "less than MDAD" value is that there is a 95% probability that the true areal density is less than the stated MDAD.

2. As expected, the highest plutonium areal densities were found over the concrete slab in front of the burned-out missile shelter and in the

adjacent grassy spots. The vast majority of the measurement points outside of the immediate accident shelter and concrete were too low to be reliability measured using hand-held instrumentation. The MDAD levels were all above the USEPA's "screening level;" for transuranics (0.2 μCi/m²), consequently, the FIDLER data are useful only in defining areas of relatively high plutonium contamination. A comparison of the 1985 FIDLER data with that of previous years indicates no substantial differences over what has been measured before (3).

B. Soil Samples

1. On-Site Levels

a. Results of the soil core samples for plutonium concentrations for the on-site locations (re: Figure 3) are summarized in Figure 5. A comparison of these results with those of past years (1975-1984) is given in Appendix A. The 1985 gamma spectroscopy results for these same locations are tabulated in Table 7. Appendix A lists the soil plutonium levels in terms of activity per gram of dried soil and areal density (μCi/m²). The latter units allow for a direct comparison with the proposed (0.2 μCi/m²) "screening level."

b. The soil sample points that exceed 0.2 μCi/m² included several near the launch shelters (sites 164, 166, 167, and 174), as well as sites next to the asphalt ditch and well inside the boundary fence (sites 172, 173, and 181). These results were not surprising since each had shown elevated levels in past years and were nearest to the burned-out launch shelter or adjacent to the drainage ditch which carried firefighting water runoff. Comparison to previous results show considerable variability, but each at one time or another exceeded 0.1 μCi/m².

c. One sample point (site 118), located between the boundary fence and highway 539, was measured at 0.226 μCi/m². This site exceeded the screening limit once before in 1983. Adjacent site numbers 116 and 127 have also exceeded the screening level in past years (1976-1981), but have since been below this level. All three points were directly downwind during the accident and may have been fumigated by the fire plume. These results, despite thei~ annual variability, are consistent with past years findings and no trends have developed in the plutonium concentrations.

d. Areal densities in all other on-site locations were below 0.2 μCi/m² and relatively unchanged from previous surveys. There has been no evidence of plutonium soil contamination outside of the fenced boundaries to the north, east, or south of the BOMARC complex (sites 134-158). Soil results to the west side of the complex have been erratic, but show some plutonium contamination, particularly at the site numbers mentioned above. The fact that this side of the complex was downwind during the accident may be partly responsible; however, the fact that the firefighting water runoff flowed in this general direction is perhaps the most significant factor in the observed soil concentrations.

2. Ditch Runoff Area

a. Radiological data for the ditch runoff sampling points are also shown in Table 7 and Appendix A. Figure 4 is a larger scale diagram of the ditch runoff area and can be used to reference the exact locations of the sample site numbers. Plutonium areal densities measured in 1985 are depicted in Figure 6.

b. Besides the few on-site points discussed above, the most significant plutonium contamination has been found in the runoff ditch area across from highway 539. Most notably, sites 107, 107A, and 109 have been well characterized as having been consistently above 0.1 $\mu Ci/m^2$ during past surveys. The area was first identified as having elevated plutonium by an aerial survey in 1973. Areal densities for these three points have varied close to three orders of magnitude over the ten years of sampling (0.004-1.33 $\mu Ci/m^2$) with no apparent trend. We believe that the ditch and its lower level runoff area to the woods received the majority of the firefighting water runoff. The area continues to receive the greatest amount of the rainfall runoff from the complex today and is a low point in the local topology. The 1985 soil results confirmed that this area remains elevated (all three were approximately 0.5 $\mu Ci/m^2$) and deserve closer attention in future surveys. Sites 107 and 107A were selected for measurement for the vertical distribution of plutonium. These results are discussed in Section IV.D of this report.

c. Sites 205-216, located at the far end of the runoff ditch and to either side, were not sampled in 1985. This general area will be extensively sampled in future surveys to determine the distribution of plutonium, both horizontally and vertically. Earlier surveys have shown areal densities in this area to be much less than the screening level, although its proximity to areas containing elevated plutonium causes it to be worth a closer look.

3. Off-Site Soil Samples

a. Soil concentrations for gamma emitting and plutonium radionuclides at the eleven off-site locations are shown in Table 4. The site number locations are given in Figure 7. These sample points were all downwind during the missile accident and were of interest with regard to the aerial dispersion modeling. Their distances from the BOMARC complex ranged form 0.6 to about 15 kilometers in a general south-southwesterly direction.

b. All but one site (Range Control) had plutonium concentrations within the range of normal background (< 0.007 $\mu Ci/m^2$). The slightly elevated plutonium level at the Fort Dix Range Control (0.11 $\mu Ci/m^2$) was unexpected, but still did not exceed the 0.2 $\mu Ci/m^2$ level. The reason for this result is unclear; however, given the site's distance from the BOMARC complex (9 kilometers) and the absence of elevated plutonium in adjacent locations, it is unlikely that the contamination was due to the missile accident. Laboratory cross-sample contamination is one possible explanation; this is supported by the fact that the plutonium was unaccompanied by Am-241. A second sample will be analyzed at a later date to resolve the discrepancy. Other radionuclides present in the samples consisted of normal background concentrations of naturally occurring species of the primordal uranium and thorium decay series members. The cesium-137 concentrations, although not naturally occurring, were probably the result of rainfall washout from 1950-1960 nuclear weapon atmospheric testing. None of these levels pose a health threat and are consistent with data at other locations in the United States.

C. Water Sampling

1. Residential Wells: Results of the gross alpha and plutonium measurements in the residential well samples are shown in Table 2. The samples were collected from tap water at seven private residences within 1-3 miles of the BOMARC complex. Gross alpha particle radioactivity for all seven satisfied the USEPA's Safe Drinking Water Act limits and no measurable plutonium was found.

2. Government Wells: Gross alpha and plutonium concentrations in all the government wells sampled met drinking water standards (< 5 pCi/liter). Plutonium concentrations were less than detectable limits. The results of these analyses are shown in Table 5. The sample locations included two wells in the BOMARC complex; the remaining site locations were on Lakehurst Naval Air Station as shown on Figure 8.

3. Off-Site Locations: Water samples were collected on most of the same sites as the off-site soil samples. Since these points were downwind at the time of the accident and included large lakes and wells tied to the local aquifers, their measurement was deemed important to determining if plutonium contamination was present in the major hydrogeologic units. Gross alpha and plutonium concentrations for these samples are given in Table 3. Sample locations are shown on Figure 7 and referenced to the same site numbering scheme as was used for Table 4. Again, all sample results satisfied gross alpha particle ratioactivity limits of the USEPA and the plutonium concentrations were below detectable limits.

D. Plutonium Vertical Soil Distributions

1. Sites 107 and 107A: Vertical profiles of the Pu-239 distribution in these soil sites are shown in Figures 9 and 10 and supported by Table 6. Both sites were located in the center of the runoff ditch across highway 539; site 107A being less than 100 feet more distal from the road and in the widening section of the ditch (re: Figure 4). The plutonium vertical profiles for the two sites were quite dissimilar; the possible reason is discussed later. The vertical distribution of site 107 appeared to be relatively uniform with depth. Although the 24-inch level had the greatest plutonium concentration (0.55 pCi/g), most of the other levels were smaller only by a factor of two or less. Given the statistical uncertainty of the sampling method, differences of this factor can generally be expected even in samples that are known to be homogeneous. Vertical distribution at site 107A, on the other hand, was extremely nonuniform and 98% of the measured plutonium was found in the first 3 inches below the surface; 80% within the first inch. These differences are difficult to explain, particularly when the sites are separated by only 100 feet. Based purely on speculation, it is believed that the amount of silt that deposits over these sites is very different and may be responsible for the dissimilar vertical distributions. Site 107,

because it is located in the narrow portion of the ditch should experience a more rapid build-up of silt from the rainwater runoff from the BOMARC complex. The runoff will contain a relatively low, but steady concentration of plutonium compounds from the complex that deposits uniformly (continuously) on the bottom of the ditch. Because of plutonium's low solubility, once deposited it is unlikely to be removed. Thus, the vertical distribution at site 107 may be the result of successive overlays of plutonium containing silt from above, rather than a migration of plutonium downward. A similar action also takes place over site 107A; however, there are several important differences. Because of the greater width of the ditch, larger overflow area, as well as less silt being available due to upstream deposits, it is expected that silt build-up at site 107A would be a considerably slower process, and that perhaps only 2-3 inches of plutonium containing silt could have been deposited over the 25 years since the accident. Though speculative, this explanation is pausible enough to explain these differences in the vertical distribution of plutonium between the two sites. Additional annual samplings will be needed to verify or refute this theory.

2. Site K0671: This site was also located in the runoff ditch, but on the opposite side of the highway from site 107 and 107A. Results of the vertical distribution measurements for plutonium are depicted in Figure 11 and summarized in Table 6. The vertical distribution of this site was very similar to that of site 107, i.e., relatively uniform plutonium concentrations with depth. Because the physical characteristics of these two sites are basically identical, the reason for the uniform distribution is believed to be the same as discussed above. This site had not been sampled prior to 1985, and therefore no data are available to compare the results with. Samples from this site were split with the New Jersey Department of Environmental Protection (NJDEP).

3. Bunker Site: The final vertical distribution sampling point was selected in an uncovered grassy area near the burned-out missile shelter. Vertical sampling results for this site are shown in Figure 12 and Table 6. The samples taken from this area were highly contaminated (> 100 nCi/g) and therefore extreme care and protective equipment were required to prevent contamination of personnel and equipment. All bunker samples for plutonium were measured using gamma spectroscopy because of the high potential for contaminating the alpha spectrometry detectors and/or laboratory personnel. The vertical distribution of plutonium was found to rapidly decrease with increasing depth. Essentially, all of the plutonium was located within the first 6 inches of soil. This observation is consistent with that of the 1973 vertical measurements and supports the conclusion that the plutonium compounds on-site were very insoluble and were not migrating downward.

E. Aerial Dispersion Modeling

1. The analyses of the aerial dispersion modeling is summarized in Table 8 and were extracted from reference 9. The results suggest that the touchdown of the plume probably occurred between 0.01 and 0.1 kilometers from the missile shelter within compass headings between 187 and 212 degrees (re: Figure 13). Although airborne concentrations and ground deposition figures were not estimated for security reasons, this sector provides a reasonable boundary for the areas that should be sampled in future surveys.

2. Results of the plutonium soil concentrations in the sectored area of Figure 13 were negative, as discussed earlier, baring the range control soil sample (off-site 11) where the elevated plutonium concentration was believed to be a laboratory artifact.

V. CONCLUSIONS AND RECOMMENDATIONS

A. The potable and nonpotable water supplies tested during the 1985 annual survey do not indicate that the local hydrogeologic units have been contaminated by the release or migration of plutonium that resulted during or since the missile fire.

B. Results of the soil samples on and adjacent to the BOMARC complex are not substantially different from the results of previous year's surveys. Areas known to have elevated plutonium areal densities were, by and large, confirmed. Despite the annual variations that typify some sampling locations, there is no evidence to suggest that large scale plutonium migration is occurring. The bulk of the plutonium compounds released remain fixed under the reinforced concrete slab in front of the missile shelter. Instrument surveys supported the soil sample results in the higher contaminated missile shelter areas.

C. Runoff rains from the missile shelter area into the drainage ditch passing underneath the highway may carry low levels of plutonium compounds into the ditch and outflow areas on the other side of Highway 539. The extent to which this is happening has not been quantified, except to note that plutonium concentrations on the soil surface have not changed much over a ten year period. Vertical distribution measurements for plutonium at two points in the ditch show a relatively uniform vertical distribution. This is consistent with the theory that minute amounts of plutonium are continually being deposited at the bottom of the ditch and over the outflow areas. This phenomenon needs to be investigated more thoroughly before a definitive conclusion can be reached.

D. The USAFOEHL should continue to monitor the site annually for the migration of plutonium as evidence of continued USAF responsibility for the area. The survey protocol should consist of the following:

1. Soil sampling at selected sites on and off the BOMARC complex with increased emphasis on the sites between the missile shelters and Highway 539, the runoff ditch across the highway, and off-site points within the sectored area of Figure 13. Vertical distribution sampling for plutonium needs to be expanded to include more sample sites between the complex boundary and outflow areas. Less emphasis should be directed at soil sampling on the north, east, and south boundaries since significant contamination has never been measured at these locations. All future measurements should be reported in units that can be compared directly with the USEPA proposed "screening level" for transuranics, i.e., 0.2 $\mu Ci/m^2$.

2. Water sampling at the seven sites on the BOMARC complex and Lakehurst Naval Air Station, as well as the ten off-site locations added

during the 1985 survey should be performed annually to detect the impact of the plutonium, if any, on the groundwater. The sampling of potable water from the residences adjacent to the Fort Dix boundary should be offered annually on a courtesy basis. Furthermore, it has been recommended that six additional shallow wells be installed into the Cohansey sand under the Air Force's Installation Restoration Program (IRP). These added surveillance wells will be useful in establishing water table depths, vertical and horizontal flow directions, and as providing additional plutonium monitoring sites around the BOMARC complex.

3. Instrument (FIDLER) surveys should continue on an annual basis, but be limited to the missile shelter grounds which are surrounded by concertina wire. The MDAD of the FIDLER is too high to permit comparison of the plutonium areal densities in most areas with the USEPA screening level for transuranics of 0.2 $\mu Ci/m^2$.

E. The BOMARC complex should be visually inspected quarterly by the McGuire AFB Radiation Protection Officer and Environmental Coordinator to ascertain the site's condition and to identify any potential loss of containment. Particular attention should be given to the expansion joints in the concrete containment slab and concertina wire fence. The expansion joints should remain sealed and free of vegetation. Civil Engineering should be contacted to repair any loss of integrity in either the concertina fence or site boundaries.

REFERENCES

1. USAF RHL Operations Plan "WATCH-DOG PLUTO," 12 September 1973.

2. United States Government Federal Register, Volume 42, No. 230, Wednesday, 30 November 1977.

3. USAFOEHL Report 85-151RZ121JRD, "Results of Radiological Surveys 1975-1984 at Fort Dix BOMARC Site NJ", August 1985.

4. USAFOEHL Letter to HQ MAC/SGPB, Subject: Evaluation of Plutonium Contamination on Groundwater, BOMARC Site, Fort Dix NJ, 31 October 1985.

5. USAFOEHL Letter to HQ MAC/SGPB, Subject: Aerial Dispersion of Plutonium at BOMARC Site, Fort Dix NJ, 22 November 1985.

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7. Sheehan, W.E., et al: Urinalysis for Metabolized Plutonium, published in Proceedings of the Ninth Annual Conference on Bioassay and Analytical Chemistry, San Diego, California, Oct 10-11, 1963.

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9. Homann, S.G., "Hot Spot Health Physics Codes," Lawrence Livermore National Laboratory, LLL Publication M-161, April 1985.

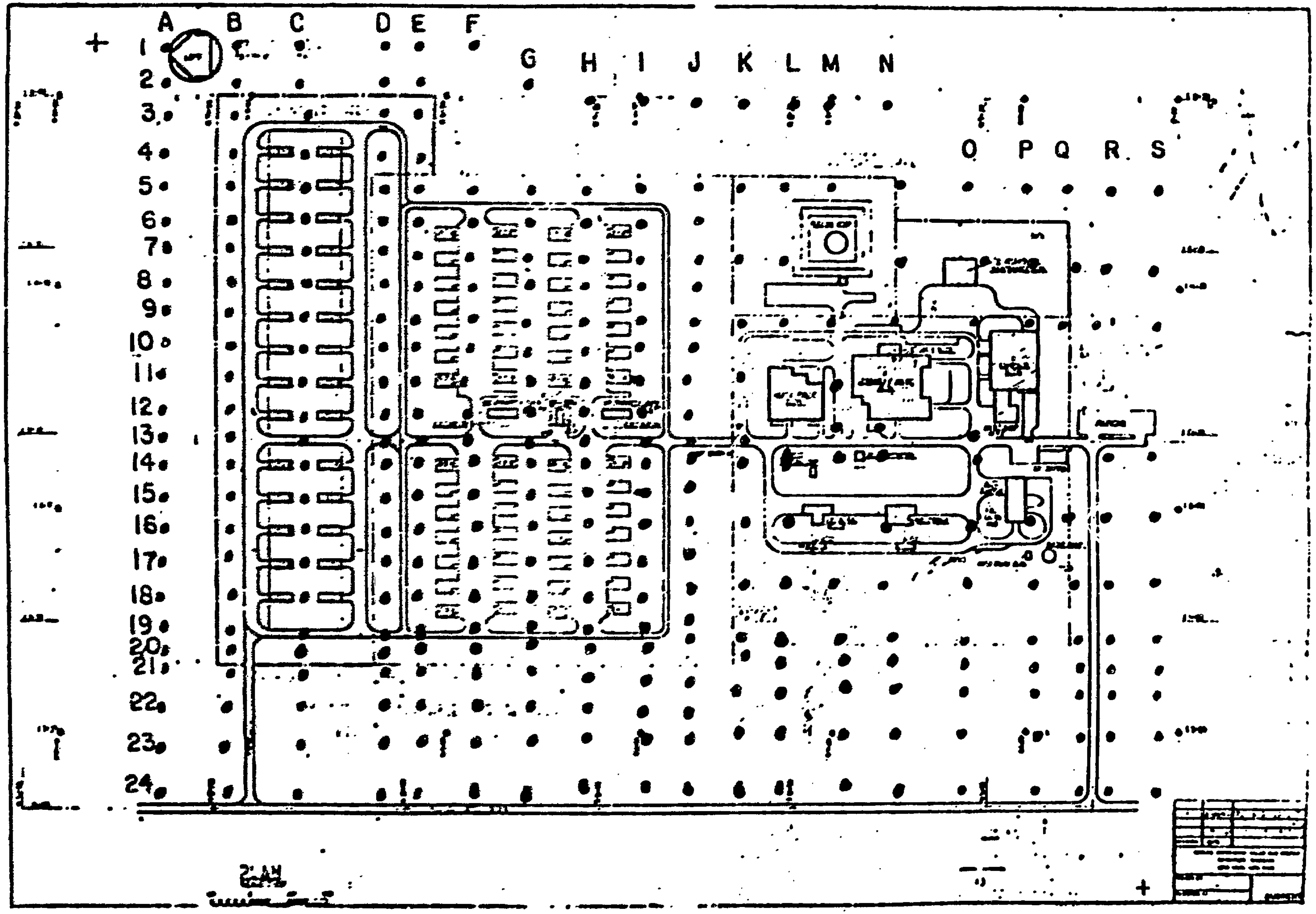


FIGURE 1 FIDLER Survey Grid, BOMARC Site

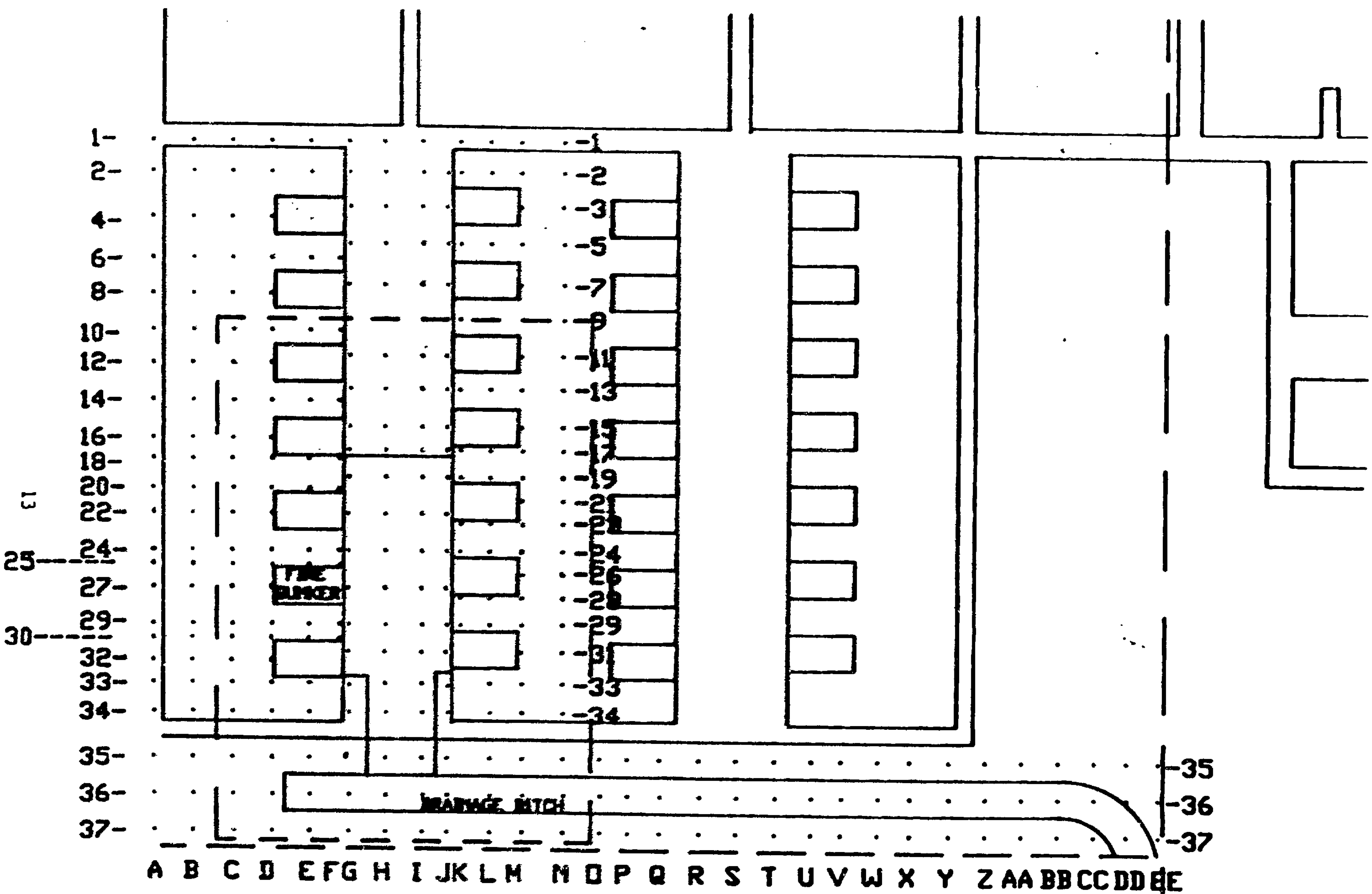


FIGURE 2 FIDLER Intensive Grid, Concrete Apron

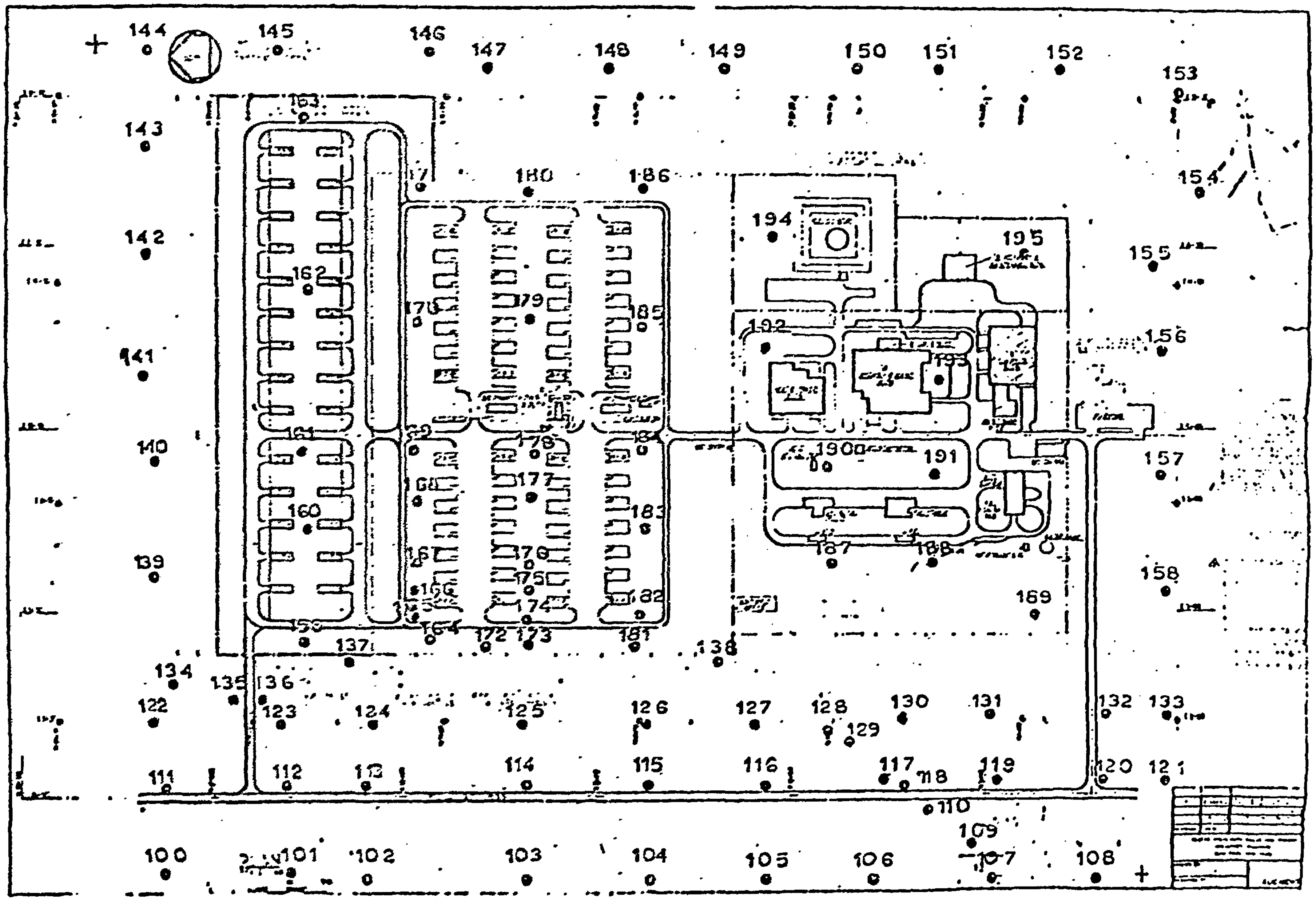
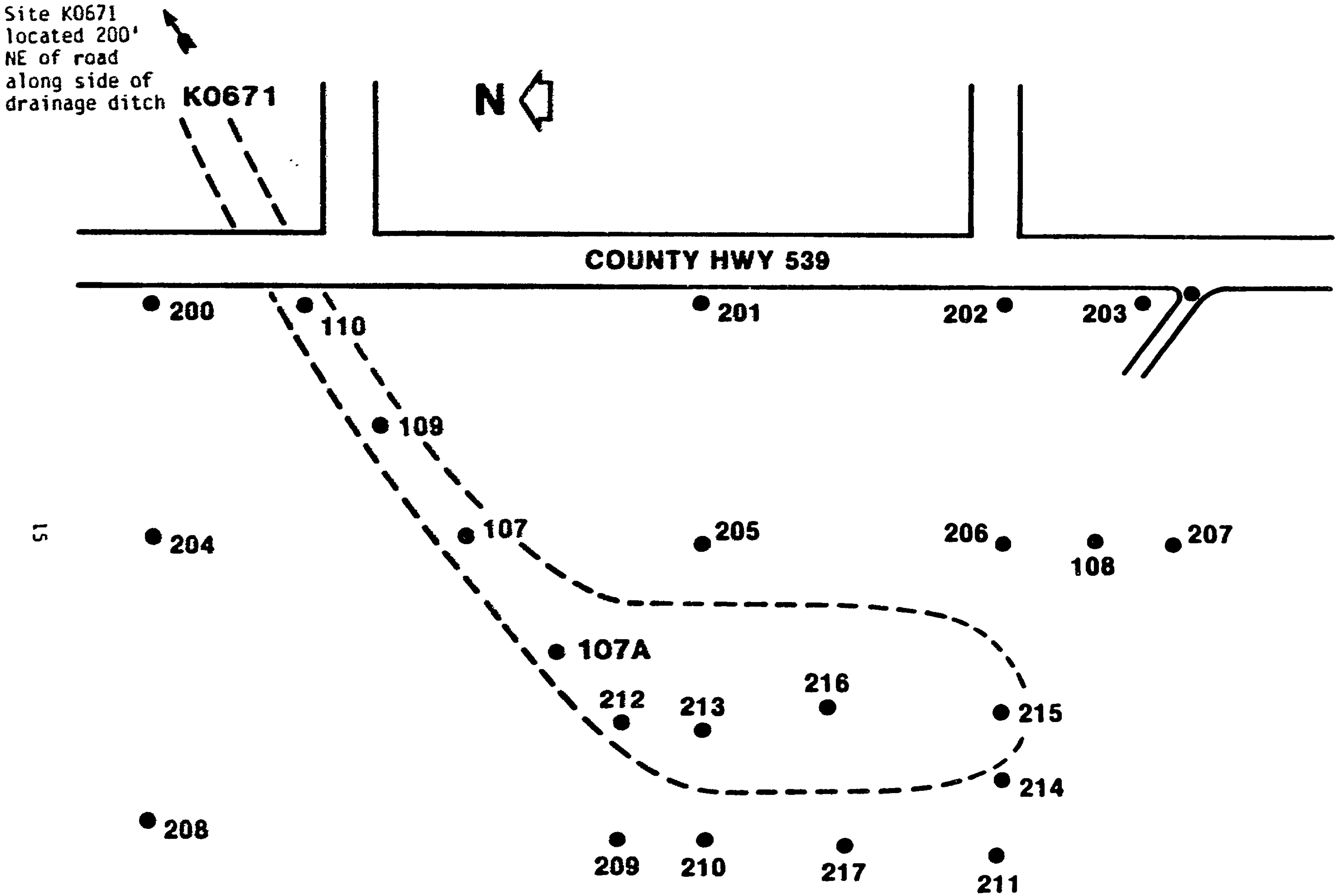


FIGURE 3 Soil Sampling Sites, BOMARC Site


Site K0671
located 200'
NE of road
along side of
drainage ditch
K0671
N
COUNTY HWY 539
200
110
201
202
203
109
107
205
206
108
207
204
107A
212
213
216
215
214
208
209
210
217
211

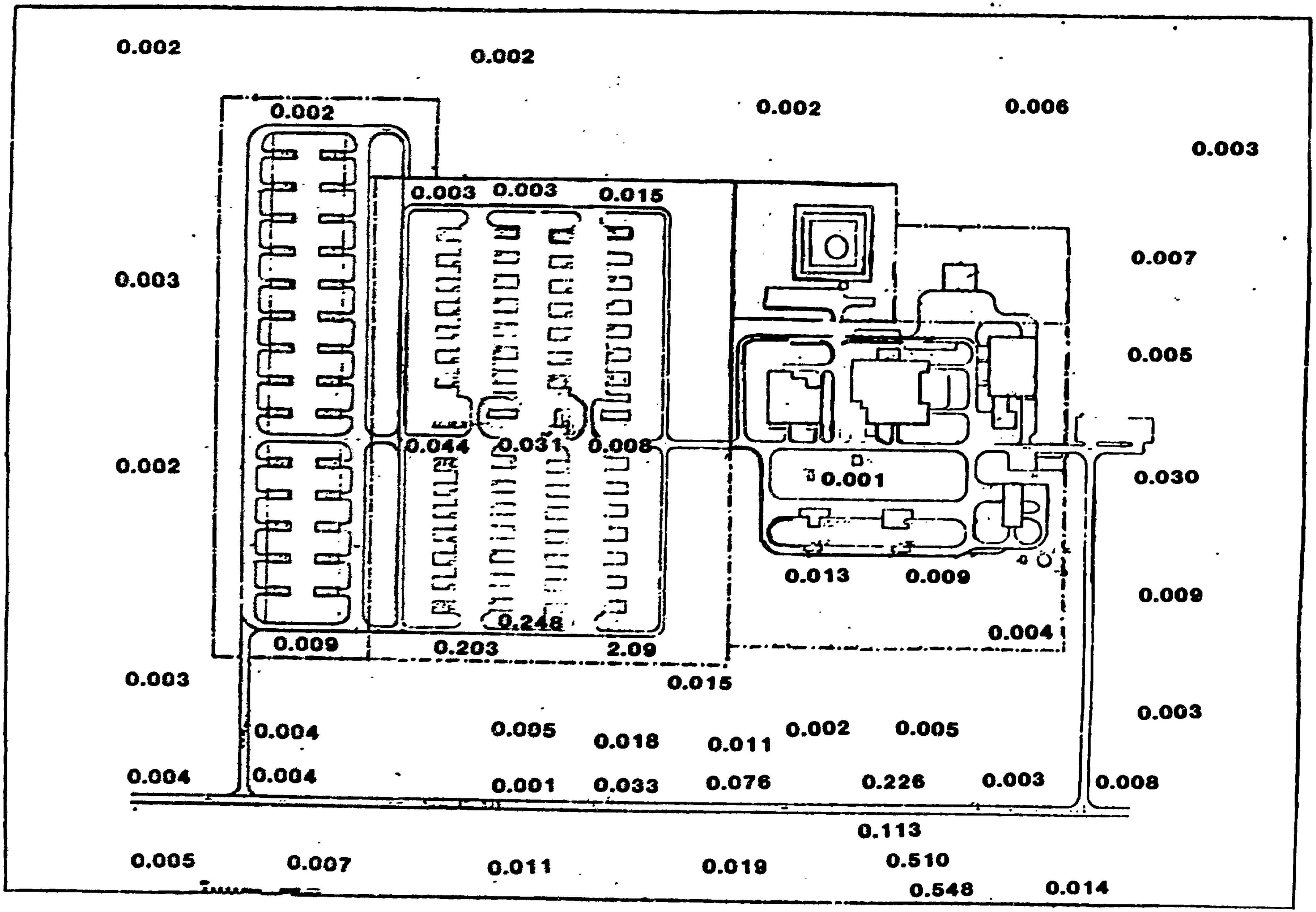
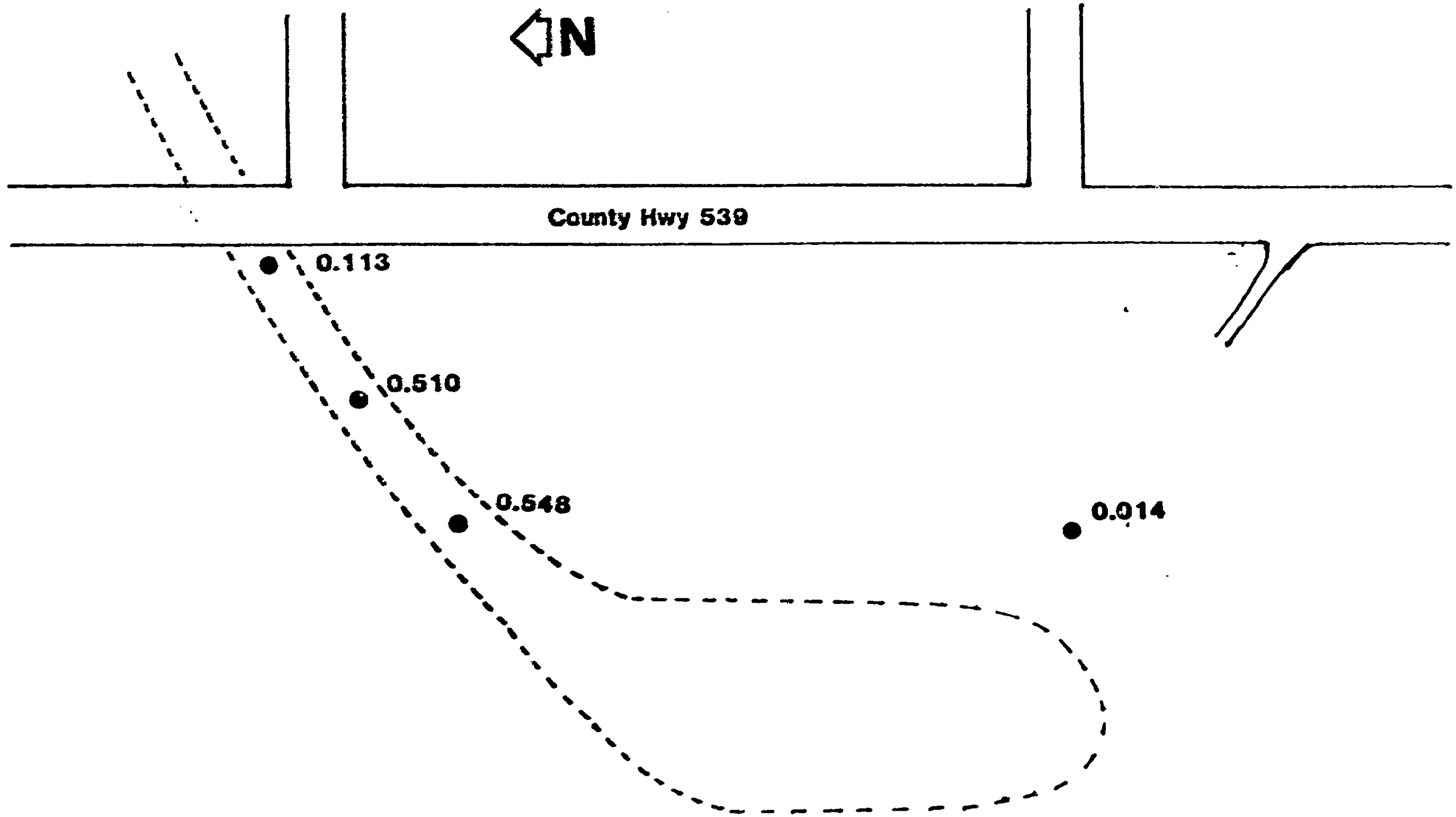
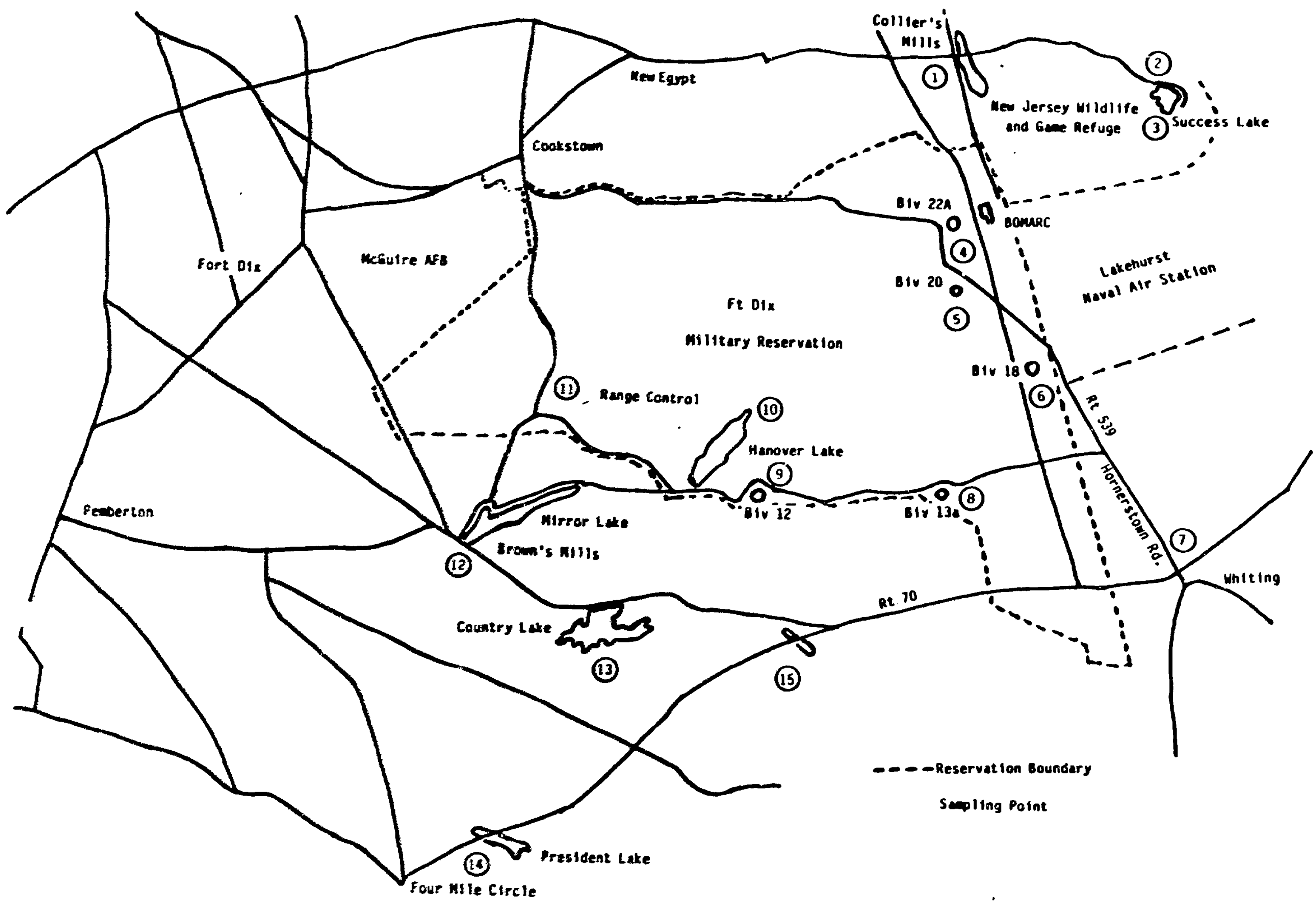


Figure 5. 1985 $Pu^{239,240}$ Soil Concentrations ($\mu Ci/m^2$)



239,240



Collier's Mills
New Egypt
New Jersey Wildlife and Game Refuge
Success Lake
Cookstown
Biv 22A
BOMARC
Lakehurst Naval Air Station
Fort Dix
McGuire AFB
Biv 20
Ft Dix
Military Reservation
Biv 18
Rt 539
Range Control
Hanover Lake
Hornerstown Rd.
Pemberton
Mirror Lake
Biv 12
Biv 13a
Brown's Mills
Whiting
Rt 70
Country Lake
Reservation Boundary
Sampling Point
President Lake
Four Mile Circle
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

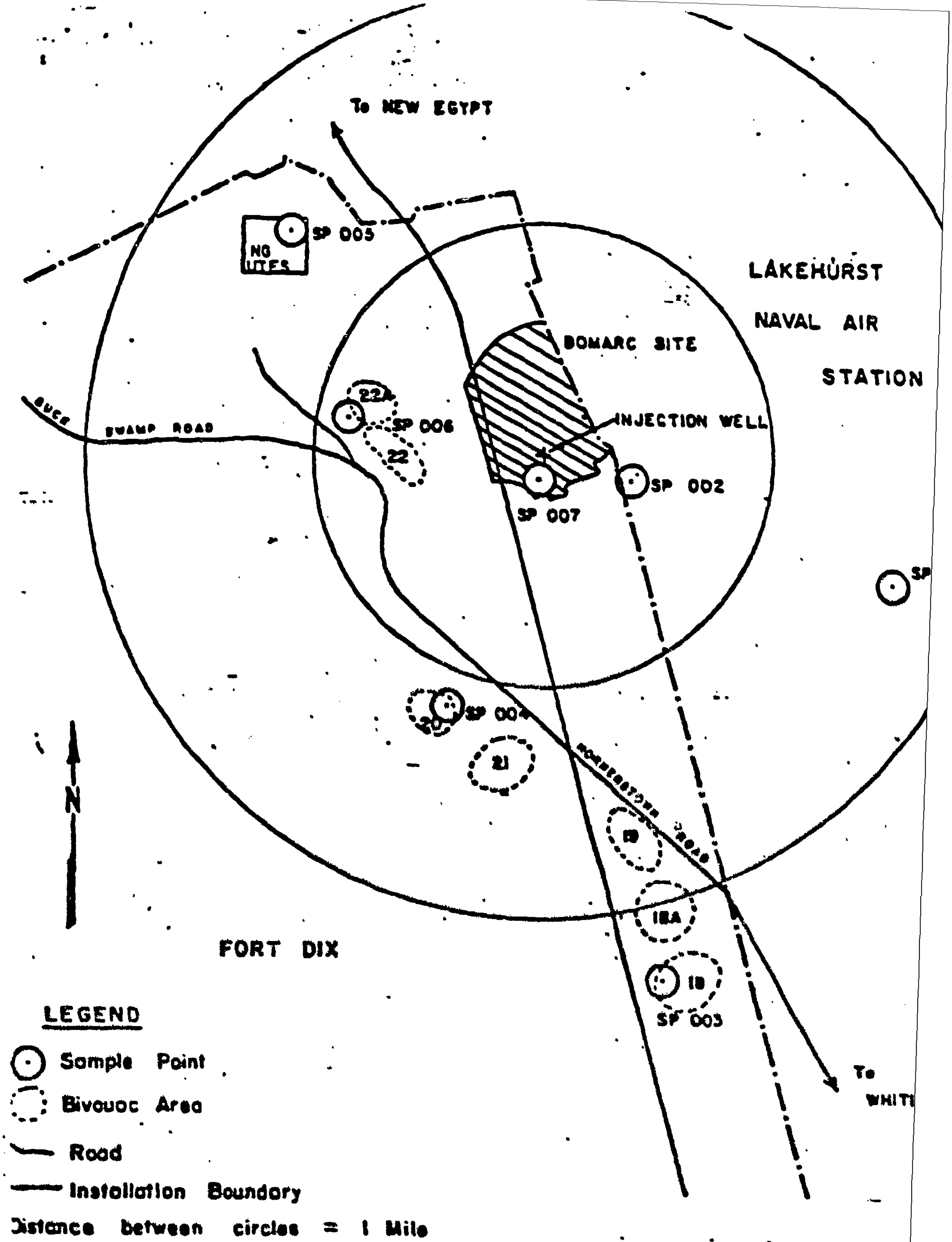


FIGURE 8 1985 Government Well Sampling Sites

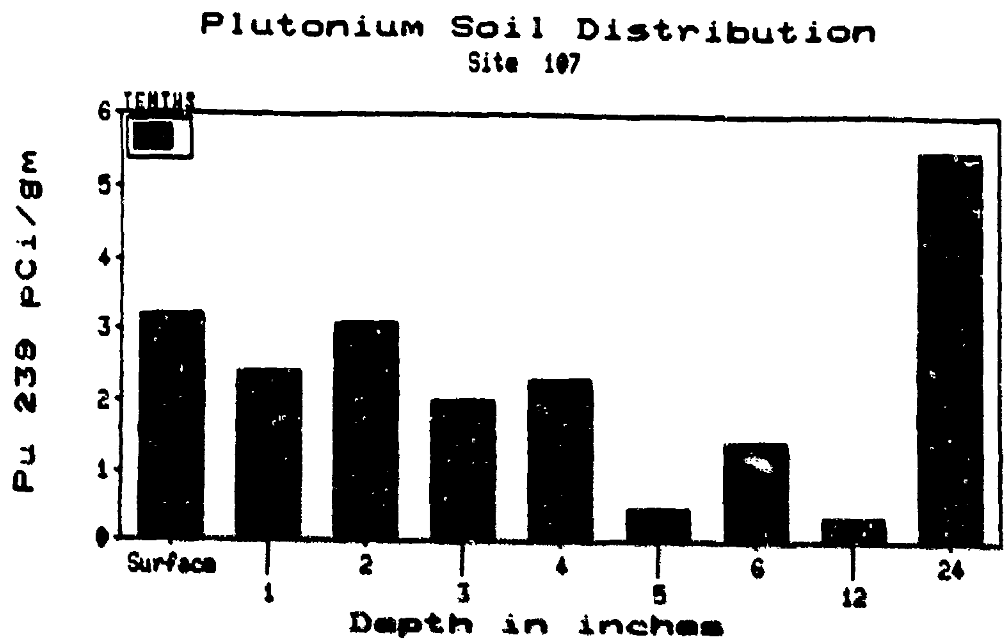


Figure 9: Vertical Pu-239 Soil Distribution, Site 107

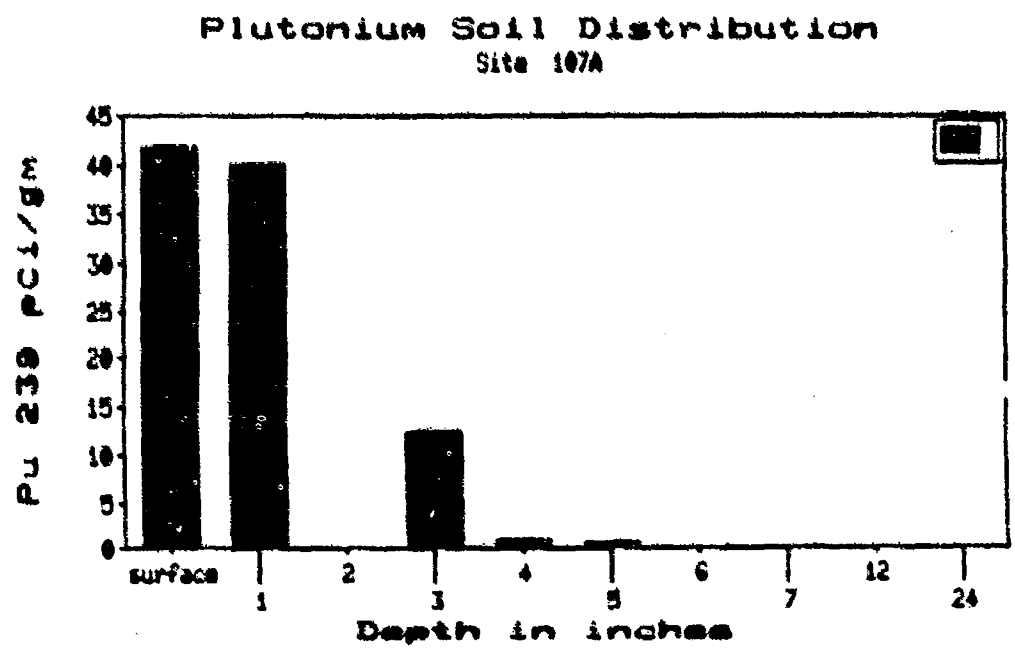


Figure 10: Vertical Pu-239 Soil Distribution, Site 107A

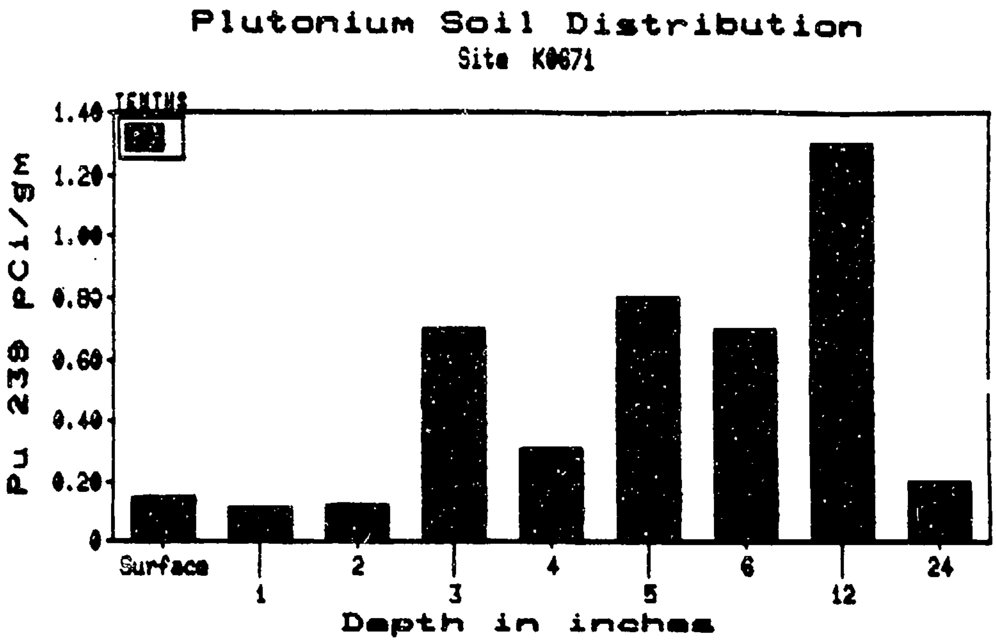


Figure 11: Vertical Pu-239 Soil Distribution, Site K0671

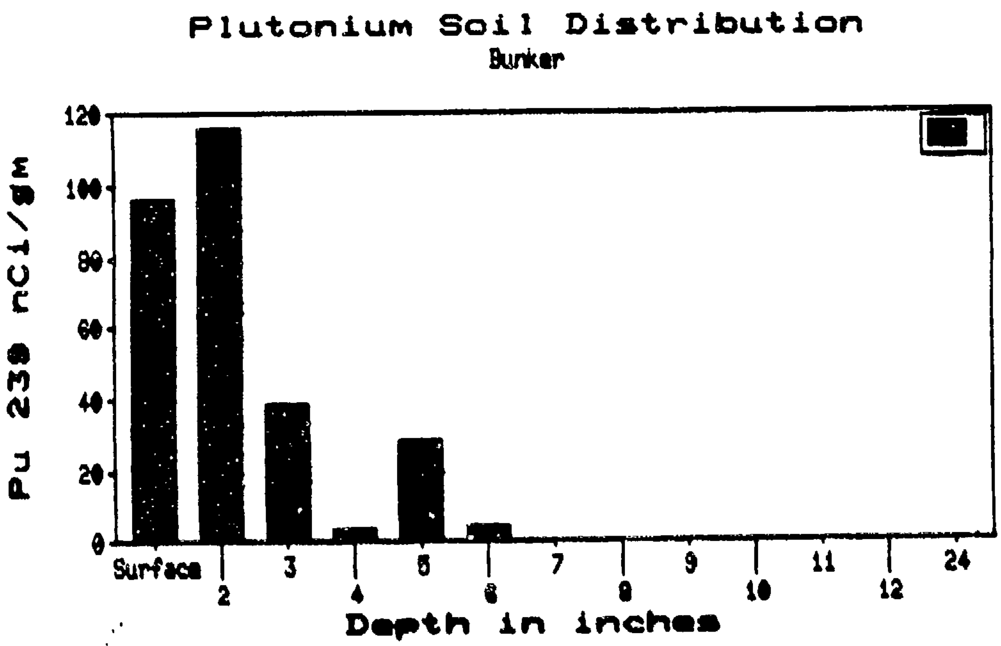


Figure 12: Vertical Pu-239 Soil Distribution, Bunker

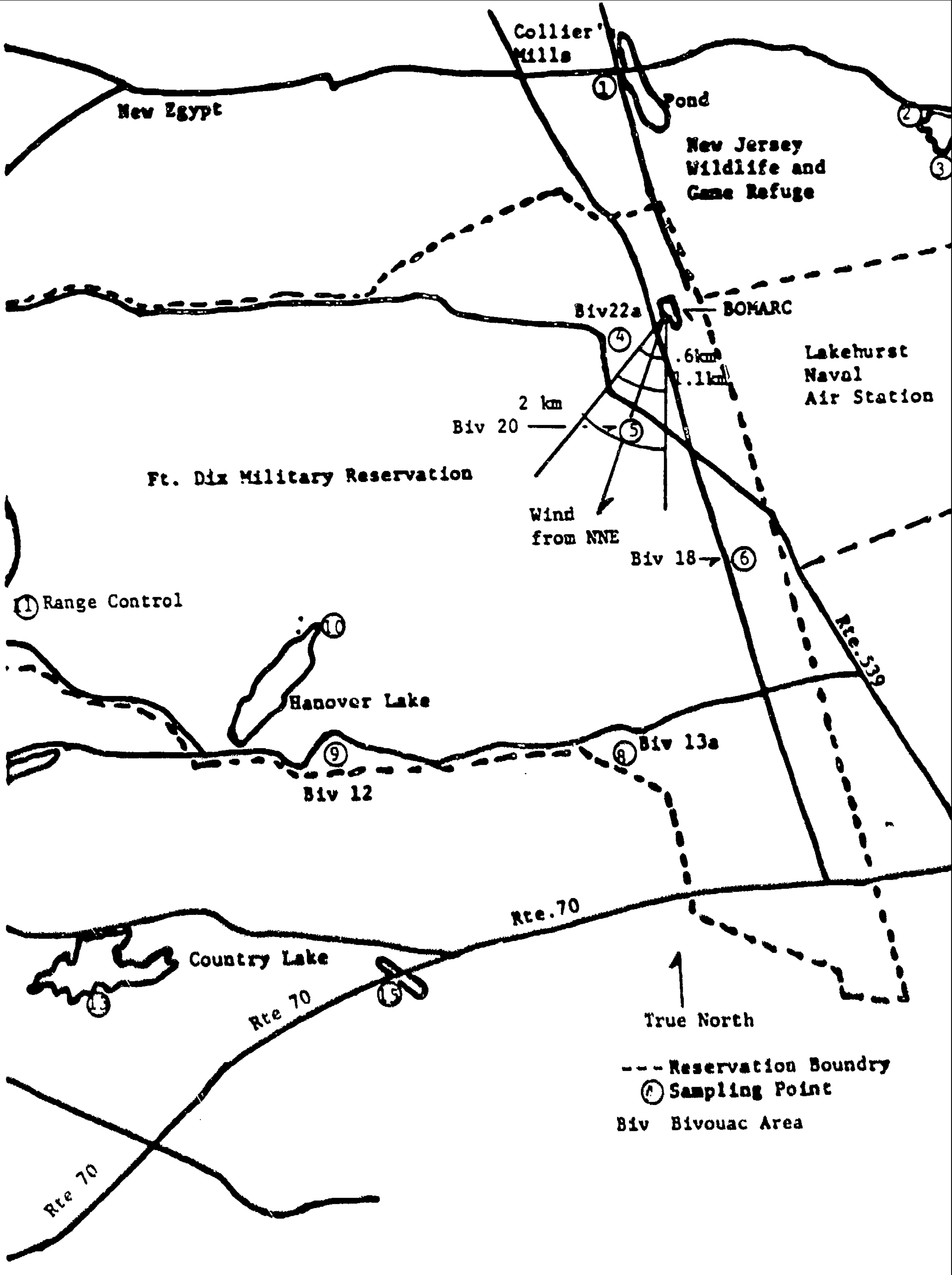


FIGURE 13 Downwind Areas from BOMARC Accident S

TABLE 1

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
A	1	2	19-SEP-85	1.738		
A	2	2	19-SEP-85	1.738		
A	4	2	19-SEP-85	1.454		
A	6	2	19-SEP-85	1.505		
A	8	2	19-SEP-85	1.505		
A	10	2	19-SEP-85	1.454		
A	12	2	19-SEP-85	1.454		
A	14	2	19-SEP-85	1.374		
A	16	2	19-SEP-85	1.401		
A	18	2	19-SEP-85	1.505		
A	20	2	19-SEP-85	1.505		
A	22	2	19-SEP-85	1.648		
A	24	2	19-SEP-85	1.505		
A	25	2	19-SEP-85	1.505		
A	27	2	19-SEP-85	1.505		
A	29	2	19-SEP-85	1.554		
A	30	2	19-SEP-85	1.505		
A	32	2	19-SEP-85	1.401		
A	33	2	19-SEP-85	0.952		
A	34	2	19-SEP-85	1.648		
A	35	2	19-SEP-85	1.454		
A	36	2	19-SEP-85	1.374		
A	37	2	19-SEP-85	1.374		
AA	35	1	19-SEP-85	0.752		
AA	36	1	19-SEP-85	0.635		
AA	37	1	19-SEP-85	1.100		
B	1	1	19-SEP-85	1.271		
B	2	1	19-SEP-85	1.271		
B	4	1	19-SEP-85	0.898		
B	6	1	19-SEP-85	0.852		
B	8	1	19-SEP-85	0.984		
B	10	1	19-SEP-85	0.984		
B	12	1	19-SEP-85	1.024		
B	14	1	19-SEP-85	1.100		
B	16	1	19-SEP-85	1.063		
B	18	1	19-SEP-85	0.984		
B	20	1	19-SEP-85	1.024		
B	22	1	19-SEP-85	1.136		
B	24	1	19-SEP-85	1.063		
B	25	1	19-SEP-85	1.063		
B	27	1	19-SEP-85	1.171		
B	29	1	19-SEP-85	1.100	1.892	43.18
B	30	1	19-SEP-85	1.100		
B	32	1	19-SEP-85	1.363		
B	33	1	19-SEP-85	1.363		
B	34	1	19-SEP-85	1.363		
B	35	1	19-SEP-85	1.100		
B	36	1	19-SEP-85	0.984		
B	37	1	19-SEP-85	1.171		
BB	35	1	19-SEP-85	0.804		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
BB	36	1	19-SEP-85	0.752		
BB	37	1	19-SEP-85	1.136		
C	1	2	19-SEP-85	1.229		
C	2	2	19-SEP-85	0.869		
C	4	2	19-SEP-85	0.727		
C	6	2	19-SEP-85	0.824		
C	8	2	19-SEP-85	0.824		
C	10	2	19-SEP-85	0.727		
C	12	2	19-SEP-85	0.752		
C	14	2	19-SEP-85	1.229		
C	16	2	19-SEP-85	0.824		
C	18	2	19-SEP-85	0.824		
C	20	2	19-SEP-85	0.824		
C	22	2	19-SEP-85	1.229		
C	24	2	19-SEP-85	1.166		
C	25	2	19-SEP-85	1.166		
C	27	2	19-SEP-85	1.505		
C	29	2	19-SEP-85	1.346		
C	30	2	19-SEP-85	0.869		
C	32	2	19-SEP-85	1.064		
C	33	2	19-SEP-85	0.752		
C	34	2	19-SEP-85	1.781		
C	35	2	19-SEP-85	1.505		
C	36	2	19-SEP-85	1.454		
C	37	2	19-SEP-85	1.289		
CC	35	1	19-SEP-85	0.804		
CC	36	1	19-SEP-85	1.063		
CC	37	1	19-SEP-85	1.024		
D	1	1	19-SEP-85	0.898		
D	2	1	19-SEP-85	0.635		
D	4	1	19-SEP-85	0.550		
D	6	1	19-SEP-85	0.898		
D	8	1	19-SEP-85	0.778		
D	10	1	19-SEP-85	0.635		
D	12	1	19-SEP-85	0.550		
D	14	1	19-SEP-85	0.898		
D	16	1	19-SEP-85	0.550		
D	18	1	19-SEP-85	0.898		
D	20	1	19-SEP-85	0.635		
D	22	1	19-SEP-85	0.898		
D	24	1	19-SEP-85	1.556	4.003	37.04
D	25	1	19-SEP-85	1.556	4.003	37.04
D	27	1	19-SEP-85	0.449		
D	29	1	19-SEP-85	0.898		
D	30	1	19-SEP-85	1.100	1.456	55.73
D	32	1	19-SEP-85	0.550		
D	33	1	19-SEP-85	1.421	3.518	35.93
D	34	1	19-SEP-85	1.136		
D	35	1	19-SEP-85	1.100		
D	36	1	19-SEP-85	0.942		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
D	37	1	19-SEP-85	0.778		
DD	35	1	19-SEP-85	1.024		
DD	36	1	19-SEP-85	0.603		
DD	37	1	19-SEP-85	1.024		
E	1	1	19-SEP-85	1.100		
E	2	1	19-SEP-85	0.635		
E	6	1	19-SEP-85	1.100		
E	10	1	19-SEP-85	0.635		
E	14	1	19-SEP-85	0.898		
E	18	1	19-SEP-85	0.568		
E	20	1	19-SEP-85	0.696		
E	24	1	19-SEP-85	1.136		
E	25	1	19-SEP-85	1.205		
E	29	1	19-SEP-85	1.205		
E	30	1	19-SEP-85	1.100		
E	33	1	19-SEP-85	0.898		
E	34	1	19-SEP-85	1.271		
E	35	1	19-SEP-85	1.271		
E	36	1	19-SEP-85	1.100		
E	37	1	19-SEP-85	1.004		
F	1	1	19-SEP-85	0.449		
F	2	1	19-SEP-85	0.898		
F	5	1	19-SEP-85	0.804		
F	6	1	19-SEP-85	0.898		
F	7	1	19-SEP-85	0.898		
F	9	1	19-SEP-85	0.984		
F	10	1	19-SEP-85	1.863	7.230	28.51
F	13	1	19-SEP-85	1.205		
F	15	1	19-SEP-85	1.100		
F	17	1	19-SEP-85	1.100		
F	18	1	19-SEP-85	1.333		
F	20	1	19-SEP-85	0.696		
F	22	1	19-SEP-85	0.603		
F	24	1	19-SEP-85	1.205		
F	25	1	19-SEP-85	0.898		
F	27	1	19-SEP-85	2.980		
F	29	1	19-SEP-85	2.541	20.862	17.75
F	30	1	19-SEP-85	1.906	15.282	14.32
F	32	1	19-SEP-85	0.984		
F	33	1	19-SEP-85	1.100		
F	34	1	19-SEP-85	1.100		
F	35	1	19-SEP-85	1.620	3.154	50.23
F	36	1	19-SEP-85	1.100		
F	37	1	19-SEP-85	1.171		
G	9	1	19-SEP-85	1.863	7.230	28.51
G	13	1	19-SEP-85	1.205		
G	15	1	19-SEP-85	1.100		
G	17	1	19-SEP-85	1.100		
G	19	1	19-SEP-85	0.696		
G	22	1	19-SEP-85	0.603		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CE
G	24	1	19-SEP-85	1.205		
G	27	1	19-SEP-85	0.942	711197.750	3.30
G	29	1	19-SEP-85	2.541		
G	31	1	19-SEP-85	1.906	12180.122	14.32
G	33	1	19-SEP-85	1.100		
G	34	1	19-SEP-85	1.100		
G	35	1	19-SEP-85	1.620	3.154	50.23
G	36	1	19-SEP-85	1.100		
G	37	1	19-SEP-85	1.171		
H	1	1	19-SEP-85	1.238		
H	2	1	19-SEP-85	1.100		
H	3	1	19-SEP-85	1.100		
H	5	1	19-SEP-85	1.100		
H	7	1	19-SEP-85	1.100		
H	9	1	19-SEP-85	1.100		
H	11	2	19-SEP-85	0.824		
H	13	2	19-SEP-85	1.289		
H	15	2	19-SEP-85	1.505		
H	17	2	19-SEP-85	1.454		
H	19	2	19-SEP-85	0.752		
H	22	2	19-SEP-85	1.229		
H	24	2	19-SEP-85	0.869		
H	27	2	19-SEP-85	0.673		
H	29	2	19-SEP-85	1.289		
H	31	2	19-SEP-85	1.943		
H	33	2	19-SEP-85	1.738		
H	34	2	19-SEP-85	1.289		
H	35	2	19-SEP-85	1.943	1881.881	70.58
H	36	2	19-SEP-85	0.869		
H	37	2	19-SEP-85	1.229		
I	1	1	19-SEP-85	1.063		
I	2	1	19-SEP-85	0.603		
I	3	1	19-SEP-85	1.063		
I	5	1	19-SEP-85	0.852		
I	7	1	19-SEP-85	0.603		
I	11	1	19-SEP-85	0.635		
I	13	1	19-SEP-85	0.942		
I	15	1	19-SEP-85	1.004		
I	19	1	19-SEP-85	0.603		
I	23	1	19-SEP-85	0.852		
I	24	1	19-SEP-85	0.898		
I	29	1	19-SEP-85	0.778		
I	31	1	19-SEP-85	0.898	0.971	60.39
I	33	1	19-SEP-85	1.004		
I	34	1	19-SEP-85	1.100		
I	35	1	19-SEP-85	2.841	11215.031	32.32
I	36	1	19-SEP-85	1.136		
I	37	1	19-SEP-85	1.004		
J	1	1	19-SEP-85	1.136		
J	2	1	19-SEP-85	0.984		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CEN
J	3	1	19-SEP-85	0.942		
J	5	1	19-SEP-85	1.238		
J	7	1	19-SEP-85	0.984		
J	11	1	19-SEP-85	1.238		
J	13	1	19-SEP-85	1.100		
J	15	1	19-SEP-85	1.556	2.038	72.02
J	19	1	19-SEP-85	1.100		
J	23	1	19-SEP-85	1.100		
J	24	1	19-SEP-85	1.100		
J	29	1	19-SEP-85	0.898		
J	31	1	19-SEP-85	1.238		
J	33	1	19-SEP-85	0.898		
J	34	1	19-SEP-85	1.271		
J	35	1	19-SEP-85	1.556		
J	36	1	19-SEP-85	1.392		
J	37	1	19-SEP-85	1.333	3.445	32.94
K	1	1	19-SEP-85	0.898		
K	2	1	19-SEP-85	0.778		
K	5	1	19-SEP-85	1.556	2.912	50.64
K	9	1	19-SEP-85	1.136		
K	13	1	19-SEP-85	1.171	1.213	73.78
K	17	1	19-SEP-85	1.205		
K	19	1	19-SEP-85	1.476	1.747	76.43
K	23	1	19-SEP-85	1.797	3.882	49.29
K	24	1	19-SEP-85	1.797	3.882	49.29
K	28	1	19-SEP-85	2.009	4.853	48.46
K	29	1	19-SEP-85	1.136		
L	1	1	19-SEP-85	0.804		
L	2	1	19-SEP-85	0.635		
L	5	1	19-SEP-85	0.804		
L	9	1	19-SEP-85	0.603		
L	17	1	19-SEP-85	0.696		
L	19	1	19-SEP-85	0.898		
L	23	1	19-SEP-85	1.024		
L	28	1	19-SEP-85	0.568		
L	29	1	19-SEP-85	0.449		
L	33	1	19-SEP-85	0.568		
L	34	1	19-SEP-85	1.063		
L	35	1	19-SEP-85	1.392		
L	36	1	19-SEP-85	1.333		
L	37	1	19-SEP-85	1.392		
M	1	1	19-SEP-85	1.189		
M	2	1	19-SEP-85	0.603		
M	3	1	19-SEP-85	0.492		
M	5	1	19-SEP-85	0.898		
M	7	1	19-SEP-85	0.532		
M	9	1	19-SEP-85	0.532		
M	11	1	19-SEP-85	0.898		
M	13	1	19-SEP-85	0.752		
M	15	1	19-SEP-85	0.568		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CEN
M	17	1	19-SEP-85	0.804		
M	19	1	19-SEP-85	0.942		
M	21	1	19-SEP-85	0.492		
M	23	1	19-SEP-85	0.696		
M	24	1	19-SEP-85	0.492		
M	26	1	19-SEP-85	0.492		
M	28	1	19-SEP-85	0.492		
M	29	1	19-SEP-85	0.898		
M	31	1	19-SEP-85	0.492		
M	33	1	19-SEP-85	1.421		
M	34	1	19-SEP-85	0.898		
M	35	1	19-SEP-85	1.271		
M	36	1	19-SEP-85	0.942		
M	37	1	19-SEP-85	1.392		
N	1	1	19-SEP-85	1.100		
N	2	1	19-SEP-85	0.532		
N	3	1	19-SEP-85	0.568		
N	5	1	19-SEP-85	0.635		
N	7	1	19-SEP-85	0.568		
N	9	1	19-SEP-85	0.550		
N	11	1	19-SEP-85	0.942		
N	13	1	19-SEP-85	0.532		
N	15	1	19-SEP-85	0.603		
N	17	1	19-SEP-85	0.603		
N	19	1	19-SEP-85	0.532		
N	21	1	19-SEP-85	0.898		
N	23	1	19-SEP-85	0.942		
N	24	1	19-SEP-85	0.804		
N	26	1	19-SEP-85	1.100		
N	28	1	19-SEP-85	1.100		
N	29	1	19-SEP-85	0.568		
N	31	1	19-SEP-85	0.898		
N	33	1	19-SEP-85	1.392		
N	34	1	19-SEP-85	1.100		
N	35	1	19-SEP-85	1.449		
N	36	1	19-SEP-85	1.063		
N	37	1	19-SEP-85	1.136		
O	35	1	19-SEP-85	1.024		
O	36	1	19-SEP-85	1.100		
O	37	1	19-SEP-85	0.984		
P	35	1	19-SEP-85	1.100		
P	36	1	19-SEP-85	1.205		
P	37	1	19-SEP-85	1.205		
Q	35	1	19-SEP-85	1.100		
Q	36	1	19-SEP-85	1.100		
Q	37	1	19-SEP-85	1.271		
R	35	1	19-SEP-85	0.984		
R	36	1	19-SEP-85	1.136		
R	37	1	19-SEP-85	1.238		
S	35	1	19-SEP-85	1.136		

COL	ROW	KIT	DATE	MINIMUM DETECTABLE [MDAD]	60 KEV LEVEL UCI/M2	ERROR PER CENT
S	36	1	19-SEP-85	1.271		
S	37	1	19-SEP-85	1.363		
T	35	1	19-SEP-85	1.136		
T	36	1	19-SEP-85	1.238		
T	37	1	19-SEP-85	1.333		
U	35	1	19-SEP-85	1.100		
U	36	1	19-SEP-85	1.238		
U	37	1	19-SEP-85	1.063		
V	35	1	19-SEP-85	1.024		
V	36	1	19-SEP-85	0.984		
V	37	1	19-SEP-85	1.136		
W	35	1	19-SEP-85	1.171		
W	36	1	19-SEP-85	1.063		
W	37	1	19-SEP-85	1.136		
X	35	1	19-SEP-85	1.063		
X	36	1	19-SEP-85	1.063		
X	37	1	19-SEP-85	1.100		
Y	35	1	19-SEP-85	1.063		
Y	36	1	19-SEP-85	1.100		
Y	37	1	19-SEP-85	1.063		
Z	35	1	19-SEP-85	1.063		
Z	36	1	19-SEP-85	1.063		
Z	37	1	19-SEP-85	1.063		

TABLE 2: Gross Alpha and Pu-239 Concentrations in Residential Well Waters (1985)

NJDEP Number	USAFOEHL Number	Sampled Residence	Concentration (pCi/liter) Gross Alpha	Pu-239
K0330	18501224	Taylor	< 1.0	< 0.02
K0331	18501211	Montervino	< 1.0	< 0.02
K0332	18501216	Lawrence	< 1.0	< 0.01
K0333	18501228	Wallin	< 1.0	< 0.01
K0334	18501226	Larsen	< 1.0	< 0.01
K0336	18501215	Leto < 1.0	< 0.02	
K0337	18501213	Cadenhead	< 1.0	< 0.01

Table 3: Gross Alpha and Pu-239 Water Concentrations in Off-Site Sampling Locations

Site* Number	USAFOEHL Number	Site Description	Concentration (pCi/liter)** Gross Alpha	Pu-239
1	18501219	Collier's Mill Pond	< 0.4	< 0.02
2	18501218	Success Lake, North	< 0.5	< 0.01
3	18501210	Success Lake, South	1.6 ± 0.8	< 0.01
5	18501212	Bivouac Site #20 Tap Water, Ft Dix	1.1 ± 0.6	< 0.02
6	18501227	Bivouac Site #18 Tap Water, Ft Dix	1.2 ± 0.6	< 0.01
10	18501214	Hanover Lake	0.8 ± 0.6	< 0.02
11	18501220	Range Control Tap Water	< 0.6	< 0.02
12	18501221	Mirror-Big Pine Lakes	0.6 ± 0.6	< 0.01
13	18501217	Country Lake	< 0.6	< 0.01
14	18501222	Hwy 70, Lebanon Lake	0.8 ± 0.6	< 0.01
15	18501225	Hwy 70, Marker 33	0.8 ± 0.6	< 0.02

*Reference Figure 7 for locations on area map.

**Result ± 2 standard deviations for the measurement.

TABLE 4: Soil Radionuclide Concentrations for Off-Site Sampling Locations

Site* Number	USAFOEHL Number	Site Description	Radio-Nuclide	Concentration (pCi/dry gram)**
4	18501280	Bivouac Site 22	Pu-239	0.013 ± 0.002
			Am-241	< 0.02
			U-238	0.29 ± 0.20
			U-235	< 0.03
			Cs-137	0.19 ± 0.01
5	18501279	Bivouac Site 20	Pu-239	0.03 ± 0.01
			Am-241	< 0.02
			U-238	0.20 ± 0.17
			U-235	< 0.03
			Cs-137	0.12 ± 0.01
6	18501278	Bivouac Site 18	Pu-239	0.013 ± 0.004
			Am-241	0.03 ± 0.03
			U-238	0.34 ± 0.21
			U-235	< 0.03
			Cs-137	0.31 ± 0.01
7	18501230	Hwy 70 & Rt 539	Pu-239	< 0.004
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.11 ± 0.01
8	18501235	Bivouac Site 13	Pu-239	0.020 ± 0.005
			Am-241	< 0.02
			U-238	0.40 ± 0.20
			U-235	0.04 ± 0.03
			Cs-137	0.107 ± 0.006
9	18501237	Bivouac Site 13A	Pu-239	0.010 ± 0.005
			Am-241	< 0.01
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.158 ± 0.007
11	18501232	Range Control	Pu-239	0.90 ± 0.04
			Am-241	< 0.03
			U-238	
			U-235	0.04 ± 0.04
			Cs-137	0.29 ± 0.01

Site* Number	USAFOEHL Number	Site Description	Radio-Nuclide	Concentration (pCi/dry gram)**
12	18501236	Mirror-Big Pine Lake Frontage	Pu-239	< 0.002
			Am-241	< 0.02
			U-238	0.60 ± 0.20
			U-235	0.235 ± 0.03
			Cs-137	0.27 ± 0.01
13	18501233	Country Lake Frontage	Pu-239	0.045 ± 0.008
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	< 0.03
			Cs-137	0.184 ± 0.007
14	18501234	Hwy 70, Lebanon Lake Frontage	Pu-239	< 0.03
			Am-241	< 0.02
			U-238	0.30 ± 0.20
			U-235	0.03
			Cs-137	0.122 ± 0.006
15	18501229	Hwy 70 & Mile Marker 33	Pu-239	0.023 ± 0.007
			Am-241	< 0.02
			U-238	
			U-235	
			Cs-137	0.53 ± 0.01

*Reference Figure 7 for site map locations

**Result ± 2 standard deviations for the measurement, results for Pu-239 in units of pCi per gram ashed

TABLE 5: Gross Alpha and Pu-239 Concentrations in Government Owned Wells - 1985

Sample* Number	Sampling Description	Depth of Well (ft)	Result** Gross Alpha (pCi/ℓ)	Result** Pu-239 (pCi/ℓ)
SP001	Naval Propulsion Lab	52	1.0 ± 1.0	< 0.01
SP002	Fire Pond 12, Elisha Branch, Lakehurst NAS	Surface	0.3 ± 0.3	< 0.03
SP003	Bivouac Site 18, Ft Dix	103	1.0 ± 1.0	< 0.03
SP004	Bivouac Site 20, Ft Dix	118	< 1.0	< 0.02
SP005	National Guard UTES Site Ft Dix	87	< 1.0	< 0.03
SP006	Bivouac Site 22a, Ft Dix	125	< 1.0	< 0.03
SP007	BOMARC Site, Well No. 2	100	< 1.0	< 0.01
MW-17	IRP Phase I Monitoring	UNK	1.4 ± 0.7	< 0.01

*Reference Figure 8 for map sampling locations

**Result ± standard deviations for measurement

TABLE 6: Soil Pu-239 Vertical Distributions

Soil Depth (inches)	Bunker (nCi/g)	K0671 (pCi/g)	Site 107 (pCi/g)	Site 107A (pCi/g)
	Soil Pu-239 Concentration			
Surface	96.6 ± 1.9	0.014 ± 0.002	0.32 ± 0.03	41.9 ± 4.0
1.0	no sample	0.011 ± 0.002	0.24 ± 0.04	40.2 ± 4.1
2.0	116.1 ± 1.5	0.012 ± 0.002	0.31 ± 0.04	no sample
3.0	38.3 ± 0.9	0.07 ± 0.01	0.20 ± 0.03	12.2 ± 1.1
4.0	3.6 ± 0.4	0.03 ± 0.01	0.23 ± 0.03	0.93 ± 0.03
5.0	27.8 ± 2.2	0.08 ± 0.02	0.05 ± 0.01	0.62 ± 0.04
6.0	3.8 ± 3.3	0.07 ± 0.02	0.14 ± 0.01	0.15 ± 0.01
7.0	0.344 ± 0.016*	no sample	no sample	0.15 ± 0.01
8.0	0.222 ± 0.004*	no sample	no sample	no sample
9.0	0.063 ± 0.002*	no sample	no sample	no sample
10.0	0.024 ± 0.002*	no sample	no sample	no sample
11.0	0.011 ± 0.002*	no sample	no sample	no sample
12.0	0.006 ± 0.001	0.13 ± 0.02	0.035 ± 0.002	0.102 ± 0.003
24.0	0.40 ± 0.04	0.02 ± 0.01	0.55 ± 0.02	0.017 ± 0.002

*Pu-239 estimated from Am-241, others measured directly

TABLE 7: 1985 Soil Sample Radionuclide Concentrations for BOMARC Site Sampling Points

Site* Number	USAFOEHL Number	Radio-Nuclide	Concentration (pCi/dry gram)**
100	18501291	Pu-239	0.024 ± 0.006
		Am-241	< 0.02
		U-238	0.4 ± 0.2
		U-235	< 0.03
		Cs-137	0.39 ± 0.01
101	18501292	Pu-239	0.03 ± 0.01
		Am-241	< 0.03
		U-238	0.8 ± 0.4
		U-235	0.09 ± 0.05
		Cs-137	0.21 ± 0.01
102	18501293	Pu-239	0.028 ± 0.009
		Am-241	< 0.02
		U-238	0.5 ± 0.3
		U-235	0.04 ± 0.04
		Cs-137	0.229 ± 0.009
103	18501294	Pu-239	0.047 ± 0.026
		Am-241	< 0.02
		U-238	0.7 ± 0.3
		U-235	0.07 ± 0.04
		Cs-137	0.24 ± 0.01
104	18501295	Pu-329	0.03 ± 0.02
		Am-241	< 0.02
		U-238	0.66 ± 0.26
		U-235	0.033 ± 0.032
		Cs-137	0.183 ± 0.008
105	18501296	Pu-239	0.09 ± 0.02
		Am-241	< 0.02
		Cs-137	0.262 ± 0.008
106	18501297	Pu-239	0.09 ± 0.02
		Am-241	< 0.02
		U-238	0.28 ± 0.22
		U-235	0.034 ± 0.025
		Cs-137	0.179 ± 0.007
107	18501298	Pu-239	2.1 ± 0.3
		Am-241	0.22 ± 0.02
		U-238	0.033 ± 0.025
		Cs-137	0.269 ± 0.008

Site* Number	USAFOEHL Number	Radio-Nuclide	Concentration (pCi/dry gram)**
108	18510299	Pu-239	0.06 ± 0.01
		Am-241	< 0.02
		U-238	0.33 ± 0.22
		U-235	0.034 ± 0.032
		Cs-137	0.196 ± 0.008
109	18510300	Pu-239	1.9 ± 0.2
		Am-241	0.09 ± 0.02
		U-238	0.24 ± 0.20
		Cs-137	0.229 ± 0.007
110	18510301	Pu-239	0.46 ± 0.07
		Am-241	0.08 ± 0.03
		U-238	0.26 ± 0.19
		U-235	0.036 ± 0.028
		Cs-137	0.170 ± 0.007
111	18510302	Pu-239	0.014 ± 0.007
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.209 ± 0.008
112	18510303	Pu-239	0.016 ± 0.008
		Am-241	< 0.03
		U-238	0.38 ± 0.29
		U-235	0.05 ± 0.04
		Cs-137	0.213 ± 0.009
113	18510304	Pu-239	0.025 ± 0.009
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.236 ± 0.009
114	18510305	Pu-239	< 0.003
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.114 ± 0.007
115	18510306	Pu-239	0.13 ± 0.07
		Am-241	< 0.03
		U-238	0.27 ± 0.23
		Cs-137	0.213 ± 0.008
116	18510307	Pu-239	0.28 ± 0.05
		Am-241	< 0.02
		Cs-137	0.229 ± 0.009
117	18510308	Pu-239	0.19 ± 0.03
		Am-241	< 0.02
		Cs-137	0.174 ± 0.007

Site* Number	USAFOEHL Number	Radio-Nuclide	Concentration (pCi/dry gram)**
118	18510309	Pu-239	0.90 ± 0.09
		Am-241	0.08 ± 0.03
		U-235	0.03 ± 0.03
		Cs-137	0.227 ± 0.008
119	18510310	Pu-239	0.015 ± 0.008
		Am-241	< 0.02
		U-235	0.032 ± 0.029
		Cs-137	0.108 ± 0.006
120	18510311	Pu-239	0.03 ± 0.01
		Am-241	< 0.02
		Cs-137	0.252 ± 0.009
121	18501312	Pu-239	0.17 ± 0.03
		Am-241	< 0.02
		Cs-137	0.42 ± 0.01
122	18501313	Pu-239	0.05 ± 0.02
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.25 ± 0.01
123	18501314	Pu-239	0.02 ± 0.01
		Am-214	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.246 ± 0.009
124	18501315	Pu-239	0.011 ± 0.007
		Am-241	< 0.02
		Cs-137	0.128 ± 0.006
125	18501316	Pu-239	0.02 ± 0.01
		Am-241	< 0.03
		Cs-137	0.132 ± 0.007
126	18501317	Pu-239	0.07 ± 0.02
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		Cs-137	0.30 ± 0.01
127	18501318	Pu-239	0.04 ± 0.01
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		U-238	0.5 ± 0.2
		Cs-137	0.189 ± 0.008

128	18501319	Pu-239	0.007 ± 0.006
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.073 ± 0.005
129	18501320	Pu-239	0.009 ± 0.007
		Am-241	< 0.02
		Cs-137	0.073 ± 0.006
130	18501321	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-235	0.03 ± 0.03
		U-238	0.22 ± 0.14
		Cs-137	0.073 ± 0.005
131	18501322	Pu-239	0.020 ± 0.007
		Am-241	< 0.02
		Cs-137	0.165 ± 0.007
132	18501323	Pu-239	0.018 ± 0.007
		Am-241	< 0.02
		U-238	0.3 ± 0.02
		Cs-137	0.208 ± 0.007
133	18501324	Pu-239	0.016 ± 0.008
		Am-241	< 0.02
		U-238	0.19 ± 0.17
		Cs-137	0.115 ± 0.006
134	18501325	Pu-239	0.011 ± 0.006
		Am-241	< 0.02
		U-238	0.6 ± 0.3
		Cs-137	0.251 ± 0.009
135	18501326	Pu-239	0.007 ± 0.004
		Am-241	< 0.02
		U-238	0.6 ± 0.3
		Cs-137	0.189 ± 0.008
136	18501327	Pu-239	0.03 ± 0.02
		Am-241	< 0.02
		U-235	0.04 ± 0.04
		U-238	0.5 ± 0.3
		Cs-137	0.280 ± 0.009
137	18501328	Pu-239	0.028 ± 0.006
		Am-241	< 0.03
		U-238	0.5 ± 0.2
		Cs-137	0.215 ± 0.008
138	18501329	Pu-239	0.06 ± 0.01
		Am-241	< 0.02
		U-238	0.20 ± 0.18
		Cs-137	0.190 ± 0.007

139	18501330	Pu-239	0.006 ± 0.004
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.072 ± 0.005
140	18501331	Pu-239	0.005 ± 0.003
		Am-241	< 0.02
		U-235	0.03 ± 0.03
		U-238	0.32 ± 0.26
		Cs-137	0.081 ± 0.006
141	18501332	Pu-239	< 0.002
		Am-241	< 0.02
		U-238	0.4 ± 0.2
		Cs-137	0.087 ± 0.006
142	18501333	Pu-239	0.009 ± 0.007
		Am-241	< 0.02
		U-235	0.03 ± 0.03
		U-238	0.37 ± 0.23
		Cs-137	0.109 ± 0.006
143	18501334	Pu-239	0.005 ± 0.004
		Am-241	< 0.02
		U-238	0.24 ± 0.21
		Cs-137	0.250 ± 0.009
144	18501335	Pu-239	0.008 ± 0.005
		Am-241	< 0.02
		U-235	0.05 ± 0.04
		U-238	0.45 ± 0.29
		Cs-137	0.219 ± 0.009
145	18501336	Pu-239	0.016 ± 0.005
		Am-241	< 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.202 ± 0.008
146	18501337	Pu-239	0.010 ± 0.005
		Am-241	< 0.02
		U-235	0.03 ± 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.204 ± 0.008
147	18501338	Pu-239	< 0.003
		Am-241	< 0.02
		U-235	0.05 ± 0.03
		U-238	0.5 ± 0.3
		Cs-137	0.141 ± 0.008
148	18501339	Pu-239	0.021 ± 0.009
		Am-241	< 0.02
		U-238	0.4 ± 0.3
		Cs-137	0.203 ± 0.008

149	18501340	Pu-239	< 0.01
		Am-241	< 0.03
		U-238	0.3 ± 0.2
		Cs-137	0.182 ± 0.008
150	18501341	Pu-239	0.034 ± 0.010
		Am-241	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.276 ± 0.009
151	18501342	Pu-239	0.015 ± 0.008
		Am-241	< 0.03
		U-238	0.4 ± 0.2
		Cs-137	0.167 ± 0.008
152	18501343	Pu-239	0.017 ± 0.006
		Am-241	< 0.03
		U-238	0.21 ± 0.20
		Cs-137	0.196 ± 0.008
153	18501344	Pu-239	0.016 ± 0.010
		Am-241	< 0.02
		U-238	0.26 ± 0.21
		Cs-137	0.182 ± 0.008
154	18501345	Pu-239	0.012 ± 0.007
		Am-241	< 0.02
		Cs-137	0.205 ± 0.008
155	18501346	Pu-239	< 0.03
		Am-241	< 0.02
		U-238	0.5 ± 0.2
		Cs-137	0.158 ± 0.008
156	18501347	Pu-239	0.019 ± 0.010
		Am-241	< 0.01
		U-238	0.2 ± 0.2
		Cs-137	0.068 ± 0.005
157	18501348	Pu-239	0.20 ± 0.03
		Am-241	< 0.01
		Cs-137	0.012 ± 0.003
158	18501349	Pu-239	0.04 ± 0.01
		Am-241	< 0.02
		U-238	0.2 ± 0.2
		Cs-137	0.116 ± 0.006
159	18501350	Pu-239	0.016 ± 0.006
		Am-241	< 0.02
		U-235	0.05 ± 0.04
		U-238	0.46 ± 0.28
		Cs-137	0.221 ± 0.008

160	18501351	Pu-239	0.08 ± 0.02
		Am-241	< 0.02
		U-238	0.29 ± 0.20
		Cs-137	0.166 ± 0.007
161	18501352	Pu-239	0.010 ± 0.005
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.131 ± 0.006
162	18501353	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-238	0.44 ± 0.27
		Cs-137	0.199 ± 0.008
163	18501354	Pu-239	< 0.01
		Am-241	< 0.03
		U-238	0.4 ± 0.3
		Cs-137	0.193 ± 0.008
164	18501355	Pu-239	0.76 ± 0.08
		Am-241	0.07 ± 0.03
		U-235	0.05 ± 0.03
		U-238	0.25 ± 0.22
		Cs-137	0.29 ± 0.01
165	18501356	Pu-239	0.63 ± 0.08
		Am-241	0.15 ± 0.03
		U-235	0.05 ± 0.03
		U-238	0.28 ± 0.24
		Cs-137	0.251 ± 0.009
166	18501357	Pu-239	0.93 ± 0.09
		Am-241	0.07 ± 0.03
		Cs-137	0.169 ± 0.008
167	18501358	Pu-239	4.9 ± 0.5
		Am-241	0.58 ± 0.04
		U-238	0.23 ± 0.18
		Cs-137	0.189 ± 0.008
168	18501359	Pu-239	0.06 ± 0.01
		Am-241	0.023 ± 0.019
		U-238	0.22 ± 0.14
		Cs-137	0.228 ± 0.007
169	18501360	Pu-239	0.16 ± 0.03
		Am-241	< 0.02
		Cs-137	0.179 ± 0.007
170	18501361	Pu-239	0.017 ± 0.008
		Am-241	< 0.02
		U-235	0.041 ± 0.035
		U-238	0.45 ± 0.25
		Cs-137	0.196 ± 0.008

171	18501362	Pu-239	0.016 ± 0.009
		Am-241	< 0.03
		Cs-137	0.317 ± 0.010
172	18501363	Pu-239	45.8 ± 3.5
		Am-241	< 0.74
173	18501364	Pu-239	10.8 ± 1.1
		Am-241	1.5 ± 0.04
		U-235	0.07 ± 0.04
		U-238	0.19 ± 0.17
		Cs-137	0.183 ± 0.009
174	18501365	Pu-239	0.90 ± 0.09
		Am-241	0.07 ± 0.02
		U-238	0.25 ± 0.15
		Cs-137	0.172 ± 0.007
175	18501366	Pu-239	0.12 ± 0.02
		Am-241	< 0.01
		U-235	0.03 ± 0.02
		Cs-137	0.149 ± 0.006
176	18501367	Pu-239	0.05 ± 0.01
		Am-241	< 0.01
		Cs-137	0.118 ± 0.006
177	18501368	Pu-239	0.05 ± 0.01
		Am-241	< 0.02
		Cs-137	0.191 ± 0.008
178	18501369	Pu-239	0.12 ± 0.02
		Am-241	< 0.02
		U-238	0.21 ± 0.20
		Cs-137	0.195 ± 0.008
179	18501370	Pu-239	0.019 ± 0.008
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.196 ± 0.007
180	18501371	Pu-239	< 0.084
		Am-241	0.023 ± 0.022
		U-235	0.04 ± 0.03
		Cs-137	0.254 ± 0.009
181	18501372	Pu-239	8.9 ± 0.6
		Am-241	0.82 ± 0.05
		U-235	0.04 ± 0.04
		U-238	0.43 ± 0.27
		Cs-137	0.163 ± 0.008

182	18501373	Pu-239	0.23 ± 0.03
		Am-241	< 0.02
		U-238	0.21 ± 0.20
		Cs-137	0.157 ± 0.007
183	18501374	Pu-239	0.03 ± 0.02
		Am-241	< 0.02
		U-238	0.3 ± 0.2
		Cs-137	0.173 ± 0.007
184	18501375	Pu-239	0.04 ± 0.01
		Am-241	< 0.03
		U-238	0.31 ± 0.27
		Cs-137	0.187 ± 0.008
185	18501376	Pu-239	0.02 ± 0.01
		Am-241	< 0.02
		U-238	0.24 ± 0.22
		Cs-137	0.195 ± 0.008
186	18501377	Pu-239	0.06 ± 0.02
		Am-241	< 0.02
		Cs-137	0.236 ± 0.008
187	18501378	Pu-239	0.05 ± 0.01
		Am-241	< 0.02
		Cs-137	0.156 ± 0.007
188	18501379	Pu-239	0.04 ± 0.02
		Am-241	< 0.02
		U-235	0.068 ± 0.032
		U-238	0.40 ± 0.19
		Cs-137	0.159 ± 0.008
189	18501380	Pu-239	0.016 ± 0.009
		Am-241	< 0.02
		U-238	0.49 ± 0.30
		Cs-137	0.209 ± 0.008
190	18501381	Pu-239	0.006 ± 0.003
		Am-241	< 0.02
		U-235	0.04 ± 0.03
		U-238	0.35 ± 0.25
		Cs-137	0.102 ± 0.006
191	18501382	Pu-239	0.014 ± 0.006
		Am-241	< 0.03
		U-238	0.6 ± 0.3
		Cs-137	0.23 ± 0.01

192	18501383	Pu-239	0.011 ± 0.005
		Am-241	< 0.02
		U-235	0.032 ± 0.029
		U-238	0.27 ± 0.21
		Cs-137	0.227 ± 0.008
193	18501384	Pu-239	0.049 ± 0.005
		Am-241	< 0.02
		U-238	0.41 ± 0.24
		Cs-137	0.186 ± 0.007
194	18501385	Pu-239	0.015 ± 0.006
		Am-241	< 0.02
		U-235	0.047 ± 0.035
		U-238	0.52 ± 0.25
		Cs-137	0.174 ± 0.008
195	18501386	Pu-239	0.014 ± 0.005
		Am-241	< 0.02
		U-235	0.05 ± 0.03
		U-238	0.29 ± 0.21
		Cs-137	0.224 ± 0.008

*Pu-239 in units of activity per gram of soil ashed.

TABLE 8: Aerial Dispersion Modeling Results

Pasquill Stability Class	Wind Velocity (m/s)	Release Height (meters)	Predicted Downwind Touchdown Point of Plume (meters)
A	3.1	122	500
C	3.1	122	1000
A	1.2	15	10
C	1.2	15	100

APPENDIX A

SOIL RESULTS (1975-1985)

Soil Sample Results - Pu 239,240

Site	Year	pCi/gm	µCi/m²	Site	Year	pCi/gm	µCi/m²
100	1975	<.02	<.004	101	1975	<.02	<.004
	1976				1976	<.05	<.03
	1978				1978	.01	.003
	1981				1981	.013	.003
	1982				1982	.20	.031
	1983				1983	.03	.004
	1984				1984	.024	.004
	1985	.024	.005		1985	.03	.007
102	1975	<.02	<.004	103	1975	.04	.009
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978	.01	.002
	1981				1981	.029	.006
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.028	.005		1985	.047	.011
104	1975	<.02	<.004	105	1975	<.02	<.004
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.03	.008		1985	.09	.019
106	1975	<.02	<.004	107	1975	<.02	<.004
	1976	<.05	<.03		1976	5.6	1.33
	1978				1978	.72	.243
	1981				1981	.13	.043
	1982				1982	4.2	1.00
	1983				1983	1.5	.34
	1984				1984	.33	.079
	1985	.09	.021		1985	2.1	.548
108	1975	2.16	.463	109	1975	.43	.134
	1976	2.8	.69		1976	1.1	.33
	1978				1978	1.34	.43
	1981	.015	.004		1981	.91	.215
	1982	.22	.064		1982	2.1	.605
	1983	1.0	.251		1983	.52	.106
	1984	.40	.087		1984	1.9	.47
	1985	.06	.014		1985	1.9	.51

Site	Year	pCi/gm	µCi/m²
110	1975	.44	.137
	1976	.43	.13
	1978	1.44	.421
	1981	.11	.035
	1982	.65	.186
	1983	.45	.095
	1984	2.0	.455
	1985	.46	.113
112	1975	<.02	<.007
	1976	<.05	<.03
	1978	.06	.043
	1981	.017	.005
	1982	.05	.014
	1983	.080	.017
	1984	.015	.003
	1985	.016	.004
114	1975	.04	.009
	1976	<.05	<.03
	1978	.04	.010
	1981	.017	.005
	1982	.32	.080
	1983	.03	.006
	1984	.50	.079
	1985	<.003	<.001
116	1975	.66	.188
	1976	1.73	.49
	1978	12.3	3.41
	1981	3.92	1.03
	1982	.08	.020
	1983	.060	.013
	1984	.35	.081
	1985	.28	.076
118	1975	.62	.179
	1976	.51	.160
	1978	.54	.166
	1981	.59	.164
	1982	.50	.148
	1983	2.5	.592
	1984	.83	.189
	1985	.90	.226
120	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.03	.008

Site	Year	pCi/gm	µCi/m²
111	1975	.02	.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.014	.004
113	1975	<.02	<.006
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.025	.007
115	1975	<.02	<.006
	1976	<.05	<.03
	1978	.04	.010
	1981	.048	.012
	1982	.22	.047
	1983	.018	.004
	1984	.080	.016
	1985	.13	.033
117	1975	.19	.059
	1976	.12	.035
	1978	.050	.017
	1981		
	1982		
	1983		
	1984		
	1985	.19	.056
119	1975	<.02	<.005
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.015	.003
121	1975	<.02	<.005
	1976	<.05	<.03
	1978		
	1981		
	1982		
	1983		
	1984		
	1985	.17	.040

Site	Year	pCi/gm	$\mu Ci/m^2$	Site	Year	pCi/gm	$\mu Ci/m^2$
122	1975	<.02	<.006	123	1975	<.02	<.007
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978	.01	.003
	1981				1981	.034	.009
	1982				1982	.085	.021
	1983				1983	.007	.002
	1984				1984	.023	.006
	1985	.05	.011		1985	.02	.004
124	1975	<.02	<.006	125	1975	.69	.199
	1976	<.05	<.03		1976	.49	.13
	1978				1978	.05	.013
	1981				1981	.56	.16
	1982				1982	.87	.264
	1983				1983	.080	.018
	1984				1984	.61	.138
	1985	.011	.003		1985	.02	.005
126	1975	.46	.099	127	1975	.95	.295
	1976	.89	.19		1976	.25	.08
	1978	.04	.010		1978	1.81	.56
	1981	.10	.017		1981	1.2	.368
	1982	.16	.050		1982	.98	.299
	1983	.020	.004		1983	2.00	.397
	1984	.20	.039		1984	1.70	.34
	1985	.07	.018		1985	.04	.011
128	1975	.03	.010	129	1975	.05	.014
	1976	<.05	<.03		1976	.11	.03
	1978	.20	.070		1978		
	1981	.050	.014		1981		
	1982	.10	.031		1982		
	1983	.18	.038		1983		
	1984	.024	.005		1984		
	1985	.007	.002		1985	.009	.003
130	1975	<.02	<.007	131	1975	<.02	<.005
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1984	.02	.005		1985	.02	.004
132	1975	<.02	<.006	133	1975	<.02	<.003
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.018	.004		1985	.016	.003

Site	Year	pCi/gm	µCi/m^2	Site	Year	pCi/gm	µCi/m^2
134	1975	.04	.012	135	1975	<.02	<.005
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982	.040	.010		1982		
	1983	.005	.001		1983		
	1984	.011	.002		1984		
	1985	.011	.003		1985	.007	.002
136	1976	<.05	<.03		1976	<.05	<.03
	1978	.01	.004		1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.03	.008		1985	.028	.007
138	1975	.02	.006	139	1975	<.02	<.007
	1976	.15	.04		1976	<.05	<.03
	1978	.06	.017		1978		
	1981	.35	.10		1981		
	1982	.29	.082		1982		
	1983	.060	.013		1983		
	1984	.33	.070		1984		
	1985	.06	.015		1985	.006	.002
140	1975	.38	.119	141	1975	<.02	<.007
	1976	<.05	<.03		1976	<.05	<.03
	1978	<.01	<.001		1978		
	1981	.15	.042		1981		
	1982	.03	.006		1982		
	1983	.010	.002		1983		
	1984	.009	.002		1984		
	1985	.005	.002		1985	<.002	.001
142	1975	<.02	<.006	143	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.009	.003		1985	.005	.004
144	1975	<.02	<.005	145	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978	.14	.040		1978		
	1981	.019	.004		1981		
	1982	.044	.013		1982		
	1983	.020	.004		1983		
	1984	.029	.006		1984		
	1985	.008	.002		1985	.016	.004

Site	Year	pCi/gm	$\mu Ci/m^2$	Site	Year	pCi/gm	$\mu Ci/m^2$
146	1975	<.02	<.006	147	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.010	.002		1985	<.003	<.001
148	1975	<.02	<.006	149	1975	.07	.020
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978	.02	.004
	1981				1981	.020	.006
	1982				1982	.11	.028
	1983				1983	.020	.004
	1984				1984	.008	.001
	1985	.021	.005		1985	<.01	<.002
150	1975	<.02	<.005	151	1975	<.02	<.005
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.034	.009		1985	.015	.004
152	1975	<.02	<.006	153	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978	.01	.002		1978		
	1981	.018	.004		1981		
	1982	.029	.008		1982		
	1983	.004	.001		1983		
	1984	.009	.002		1984		
	1985	.017	.006		1985	.016	.003
154	1975	<.02	<.006	155	1975	<.02	<.005
	1976	<.05	<.03		1976	<.05	<.03
	1978				1978	.03	.009
	1981				1981	.045	.010
	1982				1982	.040	.011
	1983				1983	.070	.013
	1984				1984	.037	.008
	1985	.012	.003		1985	<.03	<.007
156	1975	<.02	<.007	157	1975	.08	.022
	1976	<.05	<.03		1976	.24	.08
	1978				1978	.01	.004
	1981				1981		
	1982				1982	.10	.033
	1983				1983		
	1984				1984		
	1985	.019	.005		1985	.20	.03

Site	Year	pCi/gm	µCi/m²	Site	Year	pCi/gm	µCi/m²
158	1975	.03	.007	159	1975	.36	.098
	1976	<.05	<.03		1976	<.05	<.03
	1978	.01	.002		1978	.01	.003
	1981	.008	.002		1981	.012	.003
	1982	.12	.034		1982	.050	.016
	1983	.009	.001		1983	.021	.004
	1984	.018	.003		1984	.007	.001
	1985	.04	.009		1985	.016	.004
160	1975	<.02	<.006	161	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978	.01	.004		1978		
	1981	.060	.018		1981		
	1982	.23	.040		1982		
	1983				1983		
	1984				1984		
	1985	.08	.021		1985	.010	.003
162	1975	<.02	<.006	163	1975	<.02	<.007
	1976	<.05	<.03		1976	<.05	<.02
	1978				1978		
	1981				1981	.009	.003
	1982				1982	.06	.017
	1983				1983	.030	.006
	1984				1984	.025	.005
	1985	.19	.005		1985	<.01	<.002
164	1975	1.27	.410	165	1975	1.91	.604
	1976	.23	.070		1976	3.4	1.1
	1978	8.5	2.36		1978	.35	.098
	1981	.34	.080		1981		
	1982	1.47	.396		1982		
	1983	.60	.120		1983		
	1984	1.9	.43		1984		
	1985	.76	.203		1985	.63	.123
166	1975	2.36	.796	167	1975	374.	121.
	1976	4.4	1.4		1976	6.6	2.
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.93	.215		1985	4.9	1.1
168	1975	1.27	.466	169	1975	.25	.083
	1976	.46	.15		1976	<.05	<.03
	1978				1978	.05	.014
	1981				1981	.019	.006
	1982				1982	.42	.119
	1983				1983	.020	.005
	1984				1984	.13	.027
	1985	.06	.015		1985	.16	.044

Site	Year	pCi/gm	μCi/m²	Site	Year	pCi/gm	μCi/m²
170	1975	<.02	<.006	171	1975	.08	.023
	1976	.07	.02		1976	3.4	.89
	1978				1978	.12	.032
	1981				1981	.05	.013
	1982				1982	.14	.037
	1983				1983	.15	.030
	1984				1984	.050	.009
	1984	.017	.004		1985	.016	.003
172	1975	.67	.177	173	1975	20.1	6.49
	1976	.59	.150		1976	20.6	4.20
	1978				1978		
	1981				1981		
	1982	1.93	.523		1982	7.3	1.54
	1983				1983		
	1984				1984		
	1985	45.8	12.1		1985	4.9	2.87
174	1975	1.36	.449	175	1975	.68	.229
	1976	1.79	.59		1976	.61	.18
	1978	.53	.071		1978	.06	.015
	1981	.63	.137		1981		
	1982	14.8	4.51		1982		
	1983	.90	.185		1983		
	1984	.24	.032		1984		
	1985	.9	.248		1985	.12	.036
176	1975	.14	.048	177	1975	.06	.021
	1976	.12	.040		1976	.10	.030
	1978	.16	.054		1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.05	.015		1985	.05	.012
178	1975	<.02	<.006	179	1975	<.02	<.006
	1976	.12	.03		1976	<.05	<.03
	1978	.08	.022		1978		
	1981	.07	.018		1981		
	1982	.13	.033		1982		
	1983	.050	.012		1983		
	1984	.16	.037		1984		
	1985	.12	.031		1985	.019	.005
180	1975	<.02	<.005	181	1975	.18	.041
	1976	<.05	<.03		1976	5.4	1.6
	1978	.01	.003		1978	.33	.092
	1981	.03	.008		1981	17.4	2.83
	1982	.22	.056		1982	1.45	.386
	1983	.020	.004		1983	12.2	2.64
	1984	.020	.004		1984	.070	.016
	1985	.014	.003		1985	8.9	2.09

Site	Year	pCi/gm	µCi/m²	Site	Year	pCi/gm	µCi/m²
182	1975	.11	.035	183	1975	<.02	<.007
	1976	.15	.030		1976	<.05	<.03
	1978				1978		
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.23	.062		1985	.03	.008
184	1975	.02	.006	185	1975	.04	.012
	1976	<.05	<.03		1976	.33	.090
	1978	.02	.005		1978		
	1981	.22	.047		1981		
	1982	.09	.024		1982		
	1983	1.14	.056		1983		
	1984	.060	.011		1984		
	1985	.04	.008		1985	.02	.005
186	1975	.05	.015	187	1975	<.02	<.007
	1976	<.05	<.03		1976	<.05	<.03
	1978	.06	.018		1978	.01	.032
	1981	.12	.034		1981		
	1982	.11	.031		1982		
	1983	.040	.009		1983		
	1984	.15	.027		1984		
	1985	.06	.015		1985	.05	.013
188	1975	<.02	<.006	189	1975	.02	.006
	1976	<.05	<.03		1976	<.05	<.03
	1978	.07	.018		1978	.03	.008
	1981	.04	.009		1981		
	1982	.09	.027		1982		
	1983	.05	.009		1983		
	1984	.22	.054		1984		
	1985	.04	.009		1985	.016	.004
190	1975	<.02	<.006	191	1975	.03	.008
	1976	<.05	<.03		1976	<.05	<.03
	1978	.03	.010		1978	.16	.041
	1981	.02	.004		1981		
	1982	.09	.023		1982		
	1983	<.003	<.001		1983		
	1984	.018	.005		1984		
	1985	.006	.001		1985	.014	.002
192	1975	.14	.045	193	1975	<.02	<.006
	1976	<.05	<.03		1976	<.05	<.03
	1978	.01	.003		1978	.02	.006
	1981				1981		
	1982				1982		
	1983				1983		
	1984				1984		
	1985	.011	.003		1985	.049	.012

Site	Year	pCi/gm	μCi/m²
194	1975	<.02	<.006
	1976	<.05	<.03
	1978	.01	.002
	1981		
	1982		
	1983		
	1984		
	1985	.015	.003

Site	Year	pCi/gm	μCi/m²
195	1975	.15	.045
	1976	.30	.09
	1978	.29	.012
	1981	.06	.015
	1982	.04	.010
	1983	.018	.004
	1984	.070	.019
	1985	.014	.004

APPENDIX B

FIDLER SURVEY DATA

****

FIDLER READINGS

DATE -- 19 SEPT 1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES -Use red ink, pencil, or type.
-Rows are numbers.
-Columns are letters.
-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
A	1	2	160	1400	2000	*	B	29	11	450	1600	15
A	2	2	250	1500	2000	*	B	30	11	350	1200	15
A	4	2	175	800	1400	*	B	32	11	425	1800	23
A	6	2	150	750	1500	*	B	33	11	400	1300	23
A	8	2	180	1000	1500	*	B	34	11	400	1700	23
A	10	2	175	1000	1400	*	B	35	11	400	800	15
A	12	2	160	900	1400	*	B	36	11	300	700	12
A	14	2	160	1000	1250	*	B	37	11	325	900	17
A	16	2	150	1000	1300	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
A	18	2	200	800	1500	*	C	1	2	175	700	10
A	20	2	200	1000	1500	*	C	2	2	200	490	10
A	22	2	175	1000	1800	*	C	4	2	225	490	7
A	24	2	160	1000	1500	*	C	6	2	200	500	9
A	25	2	160	1000	1500	*	C	8	2	225	475	9
A	27	2	200	800	1500	*	C	10	2	150	480	7
A	29	2	180	1000	1600	*	C	12	2	175	500	7
A	30	2	200	1000	1500	*	C	14	2	200	600	10
A	32	2	160	800	1300	*	C	16	2	225	475	9
A	33	2	150	500	1200	*	C	18	2	250	425	9
A	34	2	200	1400	1800	*	C	20	2	200	500	9
A	35	2	150	800	1400	*	C	22	2	300	600	10
A	36	2	125	750	1250	*	C	24	2	250	900	9
A	37	2	225	750	1250	*	C	25	2	250	900	9
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	C	27	2	350	1400	15
B	1	11	350	1250	2000	*	C	29	2	260	600	12
B	2	11	250	1500	2000	*	C	30	2	260	500	10
B	4	11	275	700	1000	*	C	32	2	200	600	7
B	6	11	275	600	900	*	C	33	2	240	500	7
B	8	11	260	800	1200	*	C	34	2	250	750	21
B	10	11	280	800	1200	*	C	35	2	300	1000	15
B	12	11	250	800	1300	*	C	36	2	250	700	14
B	14	11	275	800	1500	*	C	37	2	225	600	11
B	16	11	275	800	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	18	11	250	800	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	20	11	290	700	1300	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	22	11	425	1500	1600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	24	11	325	900	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	25	11	325	900	1400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
B	27	11	425	1300	1700	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX

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* FIDLER READINGS

DATE -- 19 SEPT 1985

PLACE - Ft. Dix BOMARC Site

PEOPLE- Maher, Caldwell, Gage

NOTES -Use red ink, pencil, or type.
-Rows are numbers.
-Columns are letters.
-Do the whole left column first, then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
D	1	10	275	750	1000	*	F	1	10	200	450	5
D	2	10	250	500	1000	*	F	2	10	250	700	10
D	4	10	225	500	750	*	F	5	10	250	600	8
D	6	10	225	750	1000	*	F	6	10	350	700	10
D	8	10	250	750	750	*	F	7	10	275	900	10
D	10	10	225	500	1000	*	F	9	10	325	1000	12
D	12	10	250	500	750	*	F	10	1	1300	5000	43
D	14	10	250	750	1000	*	F	13	1	375	1000	18
D	16	10	275	500	750	*	F	15	1	275	800	15
D	18	10	300	750	1000	*	F	17	1	400	900	15
D	20	10	250	500	1000	*	F	18	1	475	1800	22
D	22	10	250	750	1000	*	F	20	1	275	500	12
D	24	10	1000	3250	3000	*	F	22	1	250	500	9
D	25	10	1000	3250	3000	*	F	24	1	450	1500	18
D	27	10	200	475	500	*	F	25	1	330	700	10
D	29	10	325	750	1000	*	F	27	1	1700	8000	110
D	30	10	375	1500	1500	*	F	29	1	3500	11000	80
D	32	10	250	500	750	*	F	30	1	1400	7000	45
D	33	10	600	2750	2500	*	F	32	1	300	700	12
D	34	10	475	1000	1600	*	F	33	1	375	1000	15
D	35	10	350	1250	1500	*	F	34	1	425	1100	15
D	36	10	300	1000	1100	*	F	35	1	600	3250	32
D	37	10	325	750	750	*	F	36	1	400	1000	15
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	F	37	1	350	1200	17
E	1	11	110	900	1500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
E	2	11	110	500	1000	*	H	1	1	250	900	19
E	6	11	160	800	1500	*	H	2	1	350	750	15
E	10	11	130	480	1000	*	H	3	1	350	900	15
E	14	11	140	600	1000	*	H	5	1	300	900	15
E	18	11	140	500	800	*	H	7	1	250	1000	15
E	20	11	140	500	1200	*	H	9	1	350	600	15
E	24	11	200	1200	1600	*	H	11	2	200	475	9
E	25	11	250	1400	1800	*	H	13	2	350	750	11
E	29	11	280	1500	1800	*	H	15	2	350	1100	15
E	30	11	220	1000	1500	*	H	17	2	290	750	14
E	33	11	250	750	1000	*	H	19	2	200	500	7
E	34	11	275	1500	2000	*	H	22	2	190	600	10
E	35	11	225	1250	2000	*	H	24	2	240	500	10
E	36	11	250	750	1500	*	H	27	2	220	490	6
E	37	11	200	1000	1250	*	H	29	2	240	600	11
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	H	31	2	470	2000	25

FIDLER READINGS

DATE -- 19-SEPT-1985 **NOTES** -Use red ink, pencil, or type.
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PLACE - Ft. Dix BOMARC Site -Columns are letters.
-Do the whole left column first,

PEOPLE- Maher, Caldwell, Gage then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
H	33	2	360	1400	2000	*	J	36	1	240	1600	24
H	34	2	250	750	1100	*	J	37	1	400	2500	2
H	35	2	900	2500	2500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
H	36	2	250	500	1000	*	K	1	10	110	800	1
H	37	2	325	1000	1000	*	K	2	11	140	500	1
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	K	5	11	240	3000	3
I	1	11	130	600	1400	*	K	9	11	310	600	1
I	2	10	275	500	900	*	K	13	11	180	1600	1
I	3	11	160	900	1400	*	K	17	11	225	1600	1
I	5	10	250	600	900	*	K	19	11	350	2500	2
I	7	10	225	500	900	*	K	23	11	490	4000	4
I	11	10	250	500	1000	*	K	24	11	460	4000	4
I	13	10	300	750	1100	*	K	28	11	480	5000	5
I	15	10	350	750	1250	*	K	29	11	200	1400	1
I	19	10	250	500	900	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
I	23	10	250	750	900	*	L	1	1	260	600	8
I	24	10	300	750	1000	*	L	2	11	250	490	1
I	29	10	300	750	750	*	L	5	10	200	600	8
I	31	10	350	1000	1000	*	L	9	11	110	500	9
I	33	10	375	1000	1250	*	L	17	11	140	500	1
I	34	10	450	1400	1500	*	L	19	11	180	600	1
I	35	10	3250	11000	10000	*	L	23	11	150	600	1
I	36	10	500	1500	1600	*	L	28	11	150	500	8
I	37	10	260	1000	1250	*	L	29	11	150	490	9
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	L	33	11	150	500	8
J	1	1	250	1000	1600	*	L	34	11	140	900	1
J	2	10	300	800	1200	*	L	35	11	210	1800	2
J	3	1	200	600	1100	*	L	36	11	170	1500	2
J	5	1	390	1500	1900	*	L	37	11	240	1600	2
J	7	1	310	1000	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XX
J	11	1	390	1200	1900	*	M	1	1	290	600	1
J	13	1	450	1000	1500	*	M	2	11	160	500	9
J	15	1	600	2800	3000	*	M	3	11	160	490	6
J	19	1	360	1000	1500	*	M	5	1	250	600	1
J	23	1	350	1000	1500	*	M	7	11	150	500	7
J	24	1	300	600	1500	*	M	9	10	300	500	7
J	29	1	260	600	1000	*	M	11	1	260	600	1
J	31	1	300	600	1900	*	M	13	1	260	600	7
J	33	1	240	600	1000	*	M	15	1	240	490	8
J	34	1	210	1400	2000	*	M	17	1	250	600	8
J	35	1	480	2000	3000	*	M	19	1	310	600	1

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* FIDLER READINGS

| DATE -- 19-SEPT-1985

| PLACE - Ft. Dix BOMARC Site

| PEOPLE- Maher, Caldwell, Gage

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then finish the right.

COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
M	21	1	250	490	600	*	P	35	10	425	1200	15
M	23	1	260	600	600	*	P	36	1	360	1000	18
M	24	1	310	490	600	*	P	37	11	240	1300	18
M	26	1	200	450	600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
M	28	1	260	500	600	*	Q	35	10	400	1100	15
M	29	1	300	600	1000	*	Q	36	1	210	750	15
M	31	1	240	490	600	*	Q	37	11	180	1300	20
M	33	11	210	1800	2500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
M	34	1	250	700	1000	*	R	35	10	325	1000	12
M	35	1	400	1500	2000	*	R	36	1	420	1200	16
M	36	1	380	800	1100	*	R	37	11	350	1400	19
M	37	1	460	1600	2400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	S	35	10	350	1200	16
N	1	1	290	750	1500	*	S	36	1	470	1250	20
N	2	10	200	500	700	*	S	37	11	270	1800	23
N	3	10	220	500	800	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
N	5	1	250	500	1000	*	T	35	10	400	1200	16
N	7	10	230	500	800	*	T	36	1	460	1600	19
N	9	1	250	490	750	*	T	37	11	290	2000	22
N	11	1	240	700	1100	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
N	13	11	140	500	700	*	U	35	10	275	1200	15
N	15	1	300	490	900	*	U	36	1	460	1400	19
N	17	11	200	500	900	*	U	37	11	220	1000	14
N	19	1	260	500	700	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
N	21	11	150	700	1000	*	V	35	10	375	1000	13
N	23	1	290	800	1100	*	V	36	1	350	600	12
N	24	11	170	600	800	*	V	37	11	230	1100	16
N	26	1	300	900	1500	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
N	28	11	180	1000	1500	*	W	35	10	425	1500	17
N	29	1	250	500	800	*	W	36	1	360	900	14
N	31	11	210	600	1000	*	W	37	11	250	1200	16
N	33	1	400	1500	2400	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
N	34	11	180	1200	1500	*	X	35	10	400	1000	14
N	35	1	450	2100	2600	*	X	36	1	350	750	14
N	36	11	140	800	1400	*	X	37	11	220	1000	15
N	37	11	230	1000	1600	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	Y	35	10	375	900	14
O	35	10	400	1100	1300	*	Y	36	1	360	700	15
O	36	1	260	900	1500	*	Y	37	11	200	1900	14
O	37	11	150	800	1200	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*	XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXX

FIDLER READINGS

DATE -- 19-SEPT-1985

PLACE - Ft. Dix BOMARC Site

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COL	ROW	KIT #	HV1	HV2	HV3	*	COL	ROW	KIT #	HV1	HV2	HV
Z	35	10	325	1200	1400	*						
Z	36	1	325	1000	1400	*						
Z	37	11	150	800	1400	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
AA	35	10	325	500	1400	*						
AA	36	1	300	500	1000	*						
AA	37	11	200	600	1500	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
BB	35	10	260	700	800	*						
BB	36	1	300	700	700	*						
BB	37	11	200	1000	1600	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
CC	35	10	300	600	800	*						
CC	36	1	240	600	1400	*						
CC	37	11	120	800	1300	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						
DD	35	10	325	900	1300	*						
DD	36	1	260	500	900	*						
DD	37	11	150	800	1300	*						
XXXXX	XXXXX	XXXXXXX	XXXXX	XXXXX	XXXXX	*						

Distribution List

	Copies
HQ USAF/SGPA Bolling AFB DC 20332-6188	1
AFOMS/SGPR Brooks AFB TX 78235-5000	1
SAF/MII/MIQ Washington DC 20330-5000	1 ea
HQ USAF/LEE Bolling AFB DC 20332/5000	1
HQ AFSC/SGPB Andrews AFB MD 20334-5000	1
HQ MAC/SGPB Scott AFB IL 62225-5001	10
USAF Clinic McGuire/SG/SGPB McGuire AFB NJ 08641-5300	1 ea
438 MAW/DE McGuire AFB NJ 08641-5000	1
438 MAW/CC/PA/JA McGuire AFB NJ 08641-5000	1 ea
DTIC Cameron Station Alexandria VA 22314	2